**UNIVERSITY OF WAIKATO**

**Hamilton**

**New Zealand**

**New Zealand and Indian Trade**

**in Agricultural and Manufactured Products:**

**An Empirical Analysis**

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**Working Paper in Economics 26/17**

October 2017

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**Abstract**

This study examines and presents a model of manufactured and agricultural exports from New Zealand to India and the world and from India to New Zealand. Our findings show that a country’s population, GDP, GDP per capita and exchange rate are important causal factors that influence both New Zealand’s and India’s agricultural and manufactured exports. Our findings also demonstrate that New Zealand agricultural exports are highly elastic with respect to average population, showing that a one percent increase in the average population/or market size can increase New Zealand agricultural exports to India by six percent. This is contrary to the conventional wisdom about low elasticity pessimism with respect to agricultural products. These results have policy implications in the context of trade negotiations between New Zealand and India at the bilateral level and the Regional Comprehensive Economic Partnership (RCEP) in which both New Zealand and India are participating.

**Key Words**

international trade

agricultural exports

manufactured exports

India-New Zealand Free Trade Agreement FTA

RCEP

**JEL Classification**

F01, F02, F10, F13, F14, Q1

**Acknowledgements**

This paper**,** for the 2017 New Zealand Agricultural and Resource Economics Society Conference, Rotorua, New Zealand, is an extension of Bano (1986) (NZIER) and Bano and Scrimgeour (2015). We acknowledge the support of the Department of Economics and Waikato Management School. Any errors and omissions are our own.

1. **Introduction**

New Zealand and India are seeking to negotiate a free trade agreement but negotiations are proceeding slowly. The question arises as to what extent there is potential for an increase in trade between the two nations. Predicting the benefits from trade agreements is notoriously difficult. Countries have their areas of advantage but comparative advantage and other forms of advantage change over time in response to production and consumptions technologies, changes in incomes and changes in government policies. This is particularly challenging in the context of New Zealand (NZ) and India where one is a large country and one is a small country; one has a relatively high mean per capita income and one has a low per capita income; one has exports dominated by agriculture and one has exports dominated by manufactured goods. Further, the global increase in the trade of services is important.

Despite the differences there are commonalities between the two countries that facilitate trade. They both have British Commonwealth connections. The English language is the common language of trade. Further, there are strong cultural linkages associated with cricket, the Himalayas, Sir Edmund Hilary and related themes.

This study seeks to lay a platform for consideration of trade potential by three contributions. First, it reviews historic trade patterns between the two countries. Following a review of the literature it then proceeds to analyse the trade in agriculture and manufacture products, and identify key determinants of exports from the two countries to each other and to the world. The paper is organized into six sections as follows. Section 2 provides context and overview of New Zealand’s and India’s trade in both agriculture and manufacturing sectors; Section 3 presents a brief literature review; Section 4 discusses the methodology and data sources; Section 5 presents and analyses the estimated results and Section 6 concludes.

1. **Context: New Zealand-India Trade**

The current study recognizes the historical context and trajectory of agricultural and manufactured exports and imports. New Zealand’s total exports and imports have been increasing and moving toward the same direction as GDP [See Figure 1a]. During 1990-1994, the exports were greater than the imports in most of the periods. From 2002 to 2009, imports were greater than the exports. Simultaneously, NZ GDP increased significantly from around US$ 60 billion in 2002 to US$ 130 billion in 2007. More recently, both exports and imports increased significantly during 2009-2014. Correspondingly, GDP increased by nearly US$ 70 billion in the same period. However, NZ export and import share in world trade shown a decreasing trend over the period although the trade and the GDP have obtained a favorable growth [See Figure 1b]. This is probably influenced by the high-speed growth of trade in developing countries, such as, India and China.

Overall, NZ’s export, import and GDP growth had positive growth in most of the periods, except in 1991, 1997, 1998, 2000, 2002, and 2009 [See Figure 1c]. Especially, they had the most significant growth in 2002-2004. In contrast, they also had negligible growth in 2001, 2006 and 2002. More recently in 2014, both export and imports have experienced a significant growth, reaching to about 10 percent.

India’s export, import and GDP have experienced a similar growth in 1988-2013 [See Figure 2a]. The imports have been greater than the exports in all the periods. Even recently, the gap between exports and imports has been increasing. GDP, during the same period, has increased by US$ around 1600 billion, which is five times greater than NZ’s growth in GDP. This shows a very strong increase in India’s economy. In addition, the growth in India’s export, import and GDP tend to be steady since 2011. In terms of Indian export and import share in world trade, it is unsurprising that India’s export and import have obtained a significant growth even comparing with the growth of trade in the world [See Figure 2b].

India’s export, import and GDP had positive growth in most of the periods, except in 1991, 1993, 1998, 2001, 2009 and the most recent years- 2012-2014 [See Figure 2c]. The year between 2003 and 2008 was the most prosperous period for India’s economic growth. Export, import and GDP had significant increase in this period. Especially, the import growth was dominating in the overall economy growth. Since the financial crisis, India’s economy has recovered significantly- both export and import have achieved a growth at around 30 percent in 2010 and 2011. However, the growth of economy has been reducing since that.

*Source: World Development Indicators,* The World Bank (2015)*.* First author’s calculations.

*Source: World Development Indicators,* The World Bank (2015). First author’s calculations.

*Source: UN Comtrade Database* (2015).First author’s calculations.

*Source: UN Comtrade Database* (2015).First author’s calculations.

Figure 3a and 3b show NZ’s trade in agriculture and manufacturing over time. Obviously, NZ has been acquiring a significant trade surplus in agriculture, while has been suffering from a trade deficit in the manufacturing. To be more specifically, NZ’s export in agriculture has increased by nearly US$ 22 billion from 1988 to 2014. In comparison, the imports have increased by only US$ 3 billion. In terms of manufacturing, NZ’s imports increased by the similar value as the exports in agriculture. Moreover, it can be seen from these two figures that the trade deficit obtained from the agriculture has been greater than the deficit suffered from the manufacturing, as for NZ. This also proves the dominating status of agriculture industry in NZ economy.

Figure 4a and 4b show India trade in agriculture and manufacturing over time, respectively. It can be seen that India has obtained trade surplus in both of the industries (in most of the years). To compare Figure 4a with 4b, we can find that India has more advantage in agriculture than in manufacturing since it had obtained greater surplus in agriculture than in manufacturing. Especially, the imports were greater than the exports in manufacturing in some periods, such as, 2006-2012.

The growth in NZ agricultural and manufactured exports and imports are shown in Figures 5a-5b. There was higher growth in NZ imports relative to exports between 1989 and 1998; then an increase in both imports and exports between 1999 and 2008. After that, both imports and exports increased significantly from nearly 20 percent to 22 percent in 2009-2011. More recently, both imports and exports had a slight increase from 2012 to 2014. Specifically, there is a higher rate of increase in the exports than in imports.

New Zealand manufacturing imports experienced dramatic fluctuations over the period – more so than for exports. Export growth is peaked at 25 percent in 1994; Import growth is peaked at 30 percent in 1999. The exports and imports moved toward the same direction over the period. More recently, both recovered from the great growth reduction in 2009 to a high growth rate of 15 percent in 2010 and 2011. After that, the high growth rates in manufacturing trade have been decreasing with a more dramatic reduction in the exports than the imports from 2012 to 2014. (Comprehensive data Table and Figs are available on request from the authors).

*Source: UN Comtrade Database* (2015).First author’s calculations.

The Indian history is equally important [See Figures 6a and 6b]. Indian agriculture exports fluctuated significantly between 1989 and 1998; it then increased from -5 percent to 28 percent in the period 1999-2008. Agriculture import growth remained relatively consistent, comparing with the exports. Recently, both imports and exports improved from the negative growth in 2009 to high-speed growth rate of around 38 percent in 2010. After that, both imports and exports have been declining to a low growth rate. This is true especially in the imports. There was negative growth rate for imports in 2013.

Indian manufacturing imports fluctuated significantly over the period while the exports remained relatively constant. The exports of India manufactured goods grew at a positive rate throughout the period while the imports experienced a dramatic growth reduction at a rate of -20 percent in 1991. More recently, both imports and exports recovered from the great growth reduction in 2009 to a high growth rate of more than 20 percent in 2011. After that, the high growth rates of imports and exports decreased to a negative growth again in 2012. The same happened again in 2014- the growth rate of India manufacturing export was negative in 2014.

*Source: UN Comtrade Database* (2015).First author’s calculations.

*Source: UN Comtrade Database* (2015).First author’s calculations.

Figure 7.1 shows NZ trade in Food and Live Animals (SITC 0). It can be seen that the exports in this sector have increased by US$ 17 billion from 1988 to 2014. The total increase in agriculture sectors was US$ 22 billion that we mentioned before [See Figure 3a]. Therefore, it is easily to conclude that the major growth in agriculture is contributed by the great increase in Food and Live Animals. In addition, it can be noticed that the greatest imports in this sector were below US$ 5 billion over the period. This also confirms that exports in Food and Live animals dominated in the agricultural trade.

In Table A6.1 [See Appendix], both imports and exports had a great reduction in 2009 with a decreasing rate of -15 percent. Exports had three significant growths, 2002-2004, 2006-2007 and 2009-2010 respectively. The imports experienced the similar trend with the exports. More recently, both imports and exports improved significantly from less than 5 percent to more than 10 percent in 2014.

In comparison, Figure 8.1 shows India trade in Food and Live Animals (SITC 0). It is unsurprising that India also shown a strong growth in its exports in this sector. On the one hand, the exports have increased by US$ 30 billion during 1988-2013. Recently, the exports even peaked at US$ 33 billion in 2013. The imports, on the other hand, remained relatively constant in recent years. In 2014, the exports experienced a slight decrease to US$31 billion.

In Table A7.1 [See Appendix], there are more fluctuations in the India’s imports than in the exports. The imports had two great growths, 1991-2992 and 1993-1994 respectively. The highest growth was at nearly 140 percent in 1994. Recently, the imports and exports in this sector moved toward the opposite direction with a decrease in the exports and an increase in the imports in 2010-2014.

*Source: UN Comtrade Database* (2015).First author’s calculations.

Figure 7.2 shows NZ’s export and import in Chemicals (SITC 5). Obviously, the imports in this sector were greater than the exports all the time, showing an increase in trade deficit over the period. Recently, the imports of chemicals even amounted at US$ 4.5 billion in 2014. In Table A6.2 [See Appendix], most of imports and exports are fluctuated between -20 percent and 30 percent over the period. The exports had a more significant growth than the imports in 1989-1998. The average growth of imports and exports are around 10 percent from 1999 to recent years. Moreover, both imports and exports moved toward the same direction and had an average of 10 percent in 2010-2014.

Figure 7.3 shows that NZ’s export and imports in Manufactured Goods (SITC 6) have been moving toward the same direction over the period. Specifically, the imports were slightly greater than the exports during 1988-2002. Since then, the difference between the exports and the imports has been increasing gradually. In 2014, the trade deficit in this sector was even peaked at US$ 1.5 billion. In Table A6.3 [See Appendix], the exports and the imports have been experiencing the similar trend over the period. However, the fluctuations in imports are more significant than in exports in 1997-2000. The imports had a great reduction at -35 percent in 1998. After that, there is a great import-growth at 41 percent in 1999. More recently, both imports and exports moved toward the same direction. In addition, the exports had a higher growth than the imports in 2010, 2013 and 2014, while also had a greater reduction than the imports in 2012.

NZ’s exports in Machinery (SITC 7) were greater than the imports over the period 1988-2014, which suggesting a big trade deficit obtained by NZ [See Figure 7.4]. Moreover, the trade deficit has shown an increasing trend recently. The exports in this sector were amounted to nearly US$ 14 billion in 2014. In comparison, the exports remained relatively steady. In Table A6.4 [See Appendix], there are no big differences between the fluctuations in imports and in exports. However, the growth in machinery and equipment had the most unstable trends comparing with the other sectors included in the manufacturing. Recently, the imports had an increase from a negative growth in 2009 to an average of 15 percent in 2010-2014. In comparison, the exports have been suffering from a negative growth since 2012.

*Source: UN Comtrade Database* (2015).First author’s calculations.

*Source: UN Comtrade Database* (2015).First author’s calculations.

Figures 8.2, 8.3 and 8.4 a show India’s export and import in Chemicals (SITC 5), Manufactured Goods (SITC 6) and Machinery (SITC 7), respectively. Overall, India has obtained a trade surplus in Manufactured Goods, while suffered from a trade deficit in both Chemicals and Machinery sectors. In addition, both export and import in the three sectors have been increasing gradually since 2000s.

Figure 9 shows NZ’s bilateral trade with India over time. It can be seen that NZ exports to India were greater than NZ imports from India all the time, which suggesting an advantage in trade for NZ. In comparison, the imports from India increased gradually even in 2012 and 2014, in which exports decreased by around US$200 million. Overall, NZ’s bilateral trade with India has been improving significantly since 2004. NZ’s bilateral trade with India in agriculture over time is shown in Figure 10. It is unsurprising that NZ still shown great advantage in its agricultural exports. The exports to India are peaked at around US$350 million in 2010. After that, the exports have been reducing by more than US$50 million from 2011 to 2013. In contrast, NZ imports from India in agriculture increased gradually to US$50 million in 2013.

*Source: UN Comtrade Database* (2015).First author’s calculations.

*Source: UN Comtrade Database* (2015).First author’s calculations.

*Source: UN Comtrade Database* (2015).First author’s calculations.

Specifically, Figure 10.1 shows NZ’s bilateral trade with India in Food and Live Animals. Exports were greater than the imports especially in 2009-2012 (post-global financial crisis period). It is interesting to note that NZ even experienced a trade deficit with India in some periods, such as, in 1989-1993 and 2003-2008. NZ has also suffered from a deficit in 2013 and 2014. This indicates that NZ had no extremely strong advantage in Food and Live Animals sector- the biggest sector of NZ agriculture, when it is trading with one of the biggest agricultural country in the world- India.

NZ imports of food and animal products from India tend to be steady over the period, while the exports to India fluctuated significantly- it ranged from nearly -100 percent to 280 percent [See Figure 10.1]. The exports also achieved three dramatic growths in 2002, 2006 and 2009 respectively. More recently, both imports and exports achieved a significant increase from a negative growth to a positive growth in 2012-2014.

*Source: UN Comtrade Database* (2015).First author’s calculations.

*Source: UN Comtrade Database* (2015).First author’s calculations.

Figure 11 shows NZ’s bilateral trade with India in manufacturing. In this sector, NZ suffered from a big trade deficit over time. In addition, the findings demonstrate that the increase in imports was greater than the exports leading to bilateral sectoral trade imbalance. Figure 11.1, 11.2 and 11.3 show NZ bilateral trade with India in Chemicals (SITC 5), Manufactured Goods (SITC 6) and Machinery (SITC 7), respectively. It can be observed from these figures that NZ has been suffering from large trade deficit in Chemicals and Manufactured Goods especially. In Machinery, both imports and exports moved toward the same direction, and there is no big difference between them can be observed over the period. In addition, it is interesting that NZ’s exports in Machinery to India were peaked at US$ 65 million in 2010, in which the imports were amounted to US$ 28 million.

1. **Literature Review**

Recent relevant literature was surveyed to identify papers that offer insights on issues of potential importance with regard to NZ-India trade. Papers were selected pertaining to Indian exports, and Indian involvement in the export of agricultural and manufactured products.

Armstrong (2015) analyzed the economic integration of the East and South Asian economies in the global economy, including an analysis of India-Pakistan relations. This paper used a variation of the Anderson and van Wincoop (2003) gravity model to measure trade performance and to reflect endowment structures between economies. The findings suggest that Pakistan has trade potential with the world, on average. Pakistan-India trade does not reflect potential growth. Similarly, India has higher trade potential, on average, than in the bilateral relationship with Pakistan. Overall, India’s trade with East Asia is closer to potential than its trade with the rest of South Asia. The author argued, the methodology applied in this paper would be difficult to include variables that would help explain India-Pakistan trade is so much lower than expected. The author argued that a decrease in political distance, tariffs or an increase in measure of economic freedom, would help better bilateral trade performance between India and Pakistan. SAARC does not seem to have significant trade growth between them.

Bhattacharyay and Mukhopadhyay (2015) conducted research to investigate economic partnership between India and Japan, including an examination of the benefits and challenges of the 2011 Comprehensive Economic Partnership Agreement (CEPA) between them. They presented and analysis of the economy-wide impact and their role in both regional and global integration. For empirical analysis, this study used the trade intensity index (TII) to examine whether the value of trade between two countries is greater or smaller than the expected on the basis of their importance in world trade. The findings reveal that the CEPA had a strong positive impact on bilateral trade between India and Japan. Specifically, Japanese exports to India increased at a faster rate than India’s exports to Japan. Most importantly, the authors found that there is a significant potential for trade expansion between two countries since India’s trade with Japan almost has been very small compared with that with other countries. Therefore, they concluded that India and Japan should maximize the benefit of economic complementarities of both countries.

Fukase and Martin (2015) explored the economic implications of a potential FTA between India and the U.S., using an applied general equilibrium model. The potential influence of an FTA are hypothesized by the authors and are evaluated at 100 percent and 50 percent Ad Valorem Equivalent (AVE) tariff reduction for goods and services. The key findings include a positive impact on both India and the U.S. Specifically, this study found that the U.S. is likely to gain largely through terms of trade improvement for its goods and services as the initial protection in India is particular high. India can also obtain gains from exports expansion and growth in output, especially in the textiles and apparel sectors. In addition, the authors highlighted a number of limitations and related issues may be subjects for future research. For instance, they suggested that future studies could use the actual liberalization schedules along with updated data, include more refined aggregators of trade distortions, and address the distributional consequences of trade liberalization.

Pathania (2013) investigated the relationship between the export composition of India’s international trade and its impact on economic growth. The study period was 1996 to 2011. Multi- variable regression analysis was used to identify the significance of different export sectors. The model estimated using the ordinary least square (OLS) technique found that exports from a range of sectors had a positive and statistically significant impact on economic growth but exports of manufactured goods has very high, positive and significant impact on economic growth in India during the period 1996-97 to 2011-12.

Kumar and Singh (2015) examined exports of Indian manufactured goods for the period from 1990-91 to 2011-12. The study show that performance of Indian manufacturing improved during the study period. Shares of manufactured products and exports in GDP have increased during the period. The growth rate of manufactured products and exports improved. The findings also reveal that inward FDI has significantly contributed to foster the manufactured exports performance of India.

Abidi, Halepoto, Chandio and Shaikh (2013), explored the Pak-India Trade reforms and its impact on the economy of Pakistan. The data were collected from secondary sources and analyzed using GEN-STAT software. The study revealed that Pakistan gained benefit from agricultural trade with India. The results indicated that positive economic circumstances facilitate the development of trade flows between Pakistan and selected blocs.

Price (2012) investigatedthe performance of New Zealand manufacturing firms. Findings show that the experience of New Zealand manufacturing industry during and after the 2008-09 recession was influenced by three main factors: world demand, domestic demand, and the exchange rate. Exports to Australia experienced the additional benefit of a relatively low and stable exchange rate. Looking ahead, it anticipated manufacturing activity being influenced by a considerable increase in domestic construction activity, centered on, but not limited to, the post-earthquake repairs and reconstruction of Christchurch.

Global agricultural trade has flourished in the period 2010 to 2015. Growing purchases by China and other Asian countries have been important. Meade, Muhammad and Rada (2011), explored the place of developing and middle-income countries as increasingly important export markets for high-value agricultural products due to population, urbanization, and income growth. As income rises, consumers purchase more higher-value foods, including meat products. This results in an increase of US agricultural exports (and potentially increase export revenue for New Zealand). This paper emphasizes that future demand for agricultural products will increasingly come from developing countries (for example, China and India), which have seen much higher income growth as a group than developed countries.

International trade in agricultural products has long been influenced by tariffs and other restrictions. Hence negotiations to reduce these barriers are important. Konduru, Kim and Paggi (2014) analyzed the impact of KOREA-US FTA on the agricultural exports from the US with an example of table grapes. The paper calculated preference indices for various agricultural imports from the US and rest of the world before and after the free trade agreement between the USA and Korean agricultural markets. The results show that the KOREA-US FTA definitely created opportunities for exporters of agricultural products from California. The other major finding of this study is the advantage that the U.S. exporters may obtain due to the degree of preference that will be given to them compared to exporters from other countries. It is difficult to quantify this advantage as it also depends on the marketing strategies of the exporters and not just on the trade policies of the exporting countries.

The current Trans Pacific Partnership negotiations cast a shadow over all trade negotiations in the region. Yeboah, Shaik and Agyekum (2015) examined the potential effect of a TPP agreement on U.S agricultural trade using panel VAR and IRF models. A system of three VAR equations was developed for the three endogenous variables agricultural trade, real exchange rate, and the price ratio of imports to exports. In addition, the future pattern of trade was determined using the IRF curves. The study found that a unit shock in price ratios because of the TPP agreement leads to agricultural trade creation for U.S in the short run but in the long run, leads to more trade diversion than trade creation.

Trade liberalization does not just affect the traditionally recognized and large agricultural exporting nations. De Silva *et al.* (2013), study provides a quantitative assessment of the trade policy impacts on agricultural sector growth in Sri Lanka based on the national data from 1960 to 2010. The Ordinary Least Square (OLS) method and the multiple regression models were employed to investigate whether the trade policy reforms increase the agricultural sector growth or not. The results suggest that trade liberalization enhanced agricultural sector growth and eventually lead to improved agricultural productivity in Sri Lanka. Moreover, this analysis concludes that the trade openness, investment, interest rates and Free Trade Agreements are significant factors that are positively related to agricultural sector growth. This research also confirms that the agricultural sector growth has made an important contribution to accelerate the economic growth in post-liberalization period in Sri Lanka.

Trade liberalization potentially has environmental and social consequences. Cook, Carrasco, Paini and Fraser (2011), provides a demonstration of how a comprehensive economic framework, which takes into account both the gains from trade and the costs of invasive species outbreaks, can inform decision-makers when making quarantine decisions. An empirical estimation was made of the economic welfare consequences for Australia of allowing quarantine-restricted trade in New Zealand apples to take place. The results suggest the returns to Australian society from importing New Zealand apples are likely to be negative. The price differential between the landed product with SPS measures in place and the autarkic price is insufficient to outweigh the increase in expected damage resulting from increased fire blight risk. Consequently, this empirical analysis does not support the opening up of this trade. However, it should be noted that the results are sensitive to key underlying assumptions.

1. **Methodology**

The analysis models exports as a function of fundamental economic variables in the tradition of Bano (1986). The hypothesis is that all the coefficients of the variables are positive. In other words, it can be expected that the average GDP, Population, GDP per capita, historical values and exchange rate have the positive effects on both of country’s total trade and country’s bilateral trade with partners.

The dependent variable used in each case is the value of New Zealand’s (or India’s) manufacturing or agricultural exports to the trading partners- the World or India (or New Zealand) in current US millions. These values were obtained from The World Development Indicators database. Population data was also taken from The World Development Indicator database. GDP per capita (or GDP/Population) was calculated by the authors, according to the data obtained from The World Development Indicator database.

The exchange rate was measured by the Official Exchange Rate taken from The World Development database. According to the World Bank (2015), the Official Exchange Rate is the exchange rate determined by national authorities or to the rate determined in the legally sanctioned exchange market. It is calculated as an annual average based on monthly averages (U.S. dollar against the local currency). FDI was taken from UNCTAD Statistics, which are measured by FDI inflows in US$ millions. New Zealand (or India) itself is excluded when the world is regarded as the trading partner of New Zealand (or India). For instance, New Zealand (or India) exports to the World means that New Zealand (or India) exports to the countries in the world excluding itself (or rest of the world).

Each model was estimated in logarithms in order to identify the marginal effects (or elasticities) of each determinants on country’s exports. The following five regressions were used when country *i*-New Zealand (or India) is trading with country *j*-the World:

(1.1)

(2.1)

(3.1

(4.1)

(5.1)

The following five regressions were used when country *i*-New Zealand (or India) is trading with country *j*-India (or New Zealand):

|  |  |
| --- | --- |
| (1.2) |  |
| (2.2) |  |
| (3.2) |  |
| (4.2) |  |
| (5.2) |  |

1. **Results and Analysis**

The results are presented in Tables 1 to 8. The results consistently show significant results for both equations estimated and the variables selected. Columns (1) to (5) in each table present the estimated coefficient and its related standard error of each variable used in equations. The significance of coefficient was given by t-statistics, which tell us whether a variable (e.g. GDP or Population) has statistically significant predictive capability in the presence of the other variables, that is, whether it adds something to the equation. The standard errors of the regression coefficients are shown in parentheses.

Table 1 reports total NZ manufacturing exports to the world as a function of the dependent variables. In regressions 1 to 5, nearly all the determinants have strong effects on manufacturing exports. Specifically, the log of average population of NZ and the world has the greatest impacts on manufacturing exports, comparing with the impacts of other determinants: an increase in average population of one percent tends to increase the manufacturing exports from NZ to the world by around 3.8 percent, while a one percent increase in other determinants tend to increase the exports by less than 1.34 percent. Therefore, New Zealand manufacturing export is the most elastic with respect to the changes in average population. In comparison, manufacturing exports tends to be inelastic (0.4 percent) with respect to average FDI.

Table 2 reports total Indian manufacturing exports to the world as a function of the dependent variables. All the determinants have more significant effects on Indian manufacturing exports to the world, comparing with NZ exports. Once again, the log of average population between India and the world is positively correlated with Indian exports, which is consistent with the hypothesis. An increase in average population of 1 percent tends to increase Indian manufacturing exports to the world by 11.84 percent. This result also confirmed the high elasticity of India manufacturing exports with respect to population. Other determinants, such as average GDP and GDP per capita between India and the world also have significantly positive effects on Indian manufacturing exports at a level of 1 percent. That is to say, India manufacturing exports are also highly elastic with respect to GDP and GDP per capita. However, the effects of exchange rate tend to be ambiguous on total Indian manufacturing exports. The coefficient of exchange rate is below 1 percent in regressions of Table 2, indicating an inelasticity of India manufacturing exports with respect to exchange rate.

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| --- | --- | --- | --- | --- | --- |
| **Table 1: Determinants of New Zealand Manufacturing Exports to the World** | | | | | |
|  | Dependent Variable: log (Total NZ Manufacturing Exports) | | | | |
| Regressor | (1) | (2) | (3) | (4) | (5) |
| *Log(Av. GDP)* | 0.996\*\*\* |  |  |  |  |
| (0.064) |  |  |  |  |
| *Log(Av. POP)* |  | 3.787\*\*\* |  |  |  |
|  | (0.195) |  |  |  |
| *Log(Av. GDP/POP)* |  |  | 1.342\*\*\* |  |  |
|  |  | (0.082) |  |  |
| *Log(Av. FDI)* |  |  |  | 0.397\*\*\* |  |
|  |  |  | (0.034) |  |
| *Log(Exports(-1))* |  |  |  |  | 0.890\*\*\* |
|  |  |  |  | (0.059) |
| *Log(Exchange Rate\_NZ)* | 0.086 | -0.363\*\*\* | 0.899\*\*\* | -0.743\*\*\* | -0.197 |
| (0.155) | (0.113) | (0.182) | (0.167) | (0.138) |
| *Intercept* | -8.156 | -21.640 | -4.579 | 3.900 | 1.091 |
| (1.116) | (1.590) | (0.847) | (0.458) | (0.543) |
| R squared | 0.94 | 0.96 | 0.95 | 0.90 | 0.95 |
| F-Stat | 181.302 | 278.247 | 198.338 | 106.245 | 195.073 |
| Observations | 26 | 26 | 26 | 26 | 26 |
| Standard errors are in parentheses. \*Significant at 10%; \*\*Significant at 5%; \*\*\*Significant at 1%. | | | | | |

Table 3 reports that coefficients are strongly positive of most determinants when total New Zealand agricultural exports to the world are used as the dependent variable. Especially, the log of average population between New Zealand and the world has the strongest effects on total New Zealand agriculture exports once again, confirming the high elasticity of agriculture with respect to population. An increase in average population of one percent tends to increase the exports of New Zealand agriculture by 3.697 percent, which is greater than its effects on NZ manufacturing exports to the world. Overall, the coefficients of all the determinants remain the similar level as they are used to measure total New Zealand manufacturing exports. However, the log of New Zealand exchange rate tends to be negatively correlated with its agricultural exports to the world, which is significant at around 1 percent but inconsistent with the hypothesis.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table 2: Determinants of Indian Manufacturing Exports to the World** | | | | | |
|  | Dependent Variable: log(Total Indian Manufacturing Exports) | | | | |
| Regressor | (1) | (2) | (3) | (4) | (5) |
| *Log(Av. GDP)* | 2.222\*\*\* |  |  |  |  |
| (0.065) |  |  |  |  |
| *Log(Av. POP)* |  | 11.835\*\*\* |  |  |  |
|  | (0.431) |  |  |  |
| *Log(Av. GDP/POP)* |  |  | 2.499\*\*\* |  |  |
|  |  | (0.085) |  |  |
| *Log(Av. FDI)* |  |  |  | 0.806\*\*\* |  |
|  |  |  | (0.187) |  |
| *Log(Exports(-1))* |  |  |  |  | 1.022\*\*\* |
|  |  |  |  | (0.032) |
| *Log(Exchange Rate\_Ind)* | 0.012 | -0.897\*\*\* | 0.299\*\*\* | 0.454 | -0.041 |
| (0.073) | (0.119) | (0.077) | (0.432) | (0.089) |
| *Intercept* | -26.660 | -82.951 | -10.757 | -1.207 | 0.039 |
| (0.894) | (3.148) | (0.511) | (1.358) | (0.211) |
| R squared | 0.99 | 0.98 | 0.99 | 0.80 | 0.99 |
| F-Stat | 1653.925 | 1078.199 | 1246.09 | 46.68 | 1364.316 |
| Observations | 26 | 26 | 26 | 26 | 25 |
| Standard errors are in parentheses; \*Significant at 10%; \*\*Significant at 5%; \*\*\*Significant at 1%. | | | | | |

Table 4 reports the log of average population between India and the world has the most significant effects on total Indian agricultural exports. The positive coefficient 11.6 suggests that a one percent increase in average population would increase total Indian agricultural exports by 11.6 percent. Similarly, the coefficients of the log of average GDP, GDP per capita, FDI and its previous values are positively affect Indian agricultural exports. In addition, the effects of the log of Indian exchange rate tend to be negatively correlated with Indian agricultural exports, which is inconsistent with the hypothesis.

Comparing Table 3 with Table 4, it is observed that all the determinants have more impacts on India’s exports to the world than NZ with larger coefficients/or higher elasticity on the determinants of India-world trade.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 3: Determinants of New Zealand Agricultural Exports to the World** | | | | | | | | | |
|  | Dependent Variable: log(Total NZ Agricultural Exports) | | | | | | | | |
| Regressor | (1) | (2) | (3) | | (4) | | | (5) | |
| *Log(Av. GDP)* | 0.999\*\*\* |  |  | |  | | |  | |
| (0.038) |  |  | |  | | |  | |
| *Log(Av. POP)* |  | 3.697\*\*\* |  | |  | | |  | |
|  | (0.182) |  | |  | | |  | |
| *Log(Av. GDP/POP)* |  |  | 1.332\*\*\* | |  | | |  | |
|  |  | (0.060) | |  | | |  | |
| *Log(Av. FDI)* |  |  |  | | 0.367\*\*\* | | |  | |
|  |  |  | | (0.042) | | |  | |
| *Log(Exports(-1))* |  |  |  | |  | | | 0.975\*\*\* | |
|  |  |  | |  | | | (0.063) | |
| *Log(Exchange Rate\_NZ)* | -0.556\*\*\* | -1.033\*\*\* | 0.235\* | | -1.436\*\*\* | | | -0.239 | |
| (0.090) | (0.106) | (1.132) | | (0.207) | | | (0.162) | |
| *Intercept* | -7.216 | -19.920 | -3.487 | | 5.295 | | | 0.402 | |
| (0.656) | (1.485) | (0.615) | | (0.567) | | | (0.638) | |
| R squared | 0.98 | 0.97 | 0.98 | | 0.89 | | | 0.96 | |
| F-Stat | 730.462 | 430.144 | 517.602 | | 90.689 | | | 288.672 | |
| Observations | 26 | 26 | 26 | | 26 | | | 25 | |
| Standard errors are in parentheses; \*Significant at 10%; \*\*Significant at 5%; \*\*\*Significant at 1%. | | | | | | | | | |
| **Table 4: Determinants of Indian Agricultural Exports to the World** | | | | | | | | |
|  | Dependent Variable: log(Total Indian Agricultural Exports) | | | | | | | |
| Regressor | (1) | (2) | | (3) | | (4) | (5) | |
| *Log(Av. GDP)* | 2.251\*\*\* |  | |  | |  |  | |
| (0.079) |  | |  | |  |  | |
| *Log(Av. POP)* |  | 11.588\*\*\* | |  | |  |  | |
|  | (0.811) | |  | |  |  | |
| *Log(Av. GDP/POP)* |  |  | | 2.543\*\*\* | |  |  | |
|  |  | | (0.085) | |  |  | |
| *Log(Av. FDI)* |  |  | |  | | 0.755\*\*\* |  | |
|  |  | |  | | (0.202) |  | |
| *Log(Exports(-1))* |  |  | |  | |  | 1.041\*\*\* | |
|  |  | |  | |  | (0.056) | |
| *Log(Exchange Rate\_Ind)* | -0.422\*\*\* | -1.244\*\*\* | | -0.139\* | | 0.146 | -0.051 | |
| (0.089) | (0.224) | | (0.077) | | (0.465) | (0.135) | |
| *Intercept* | -26.948 | -81.042 | | -10.901 | | -0.808 | -0.088 | |
| (1.086) | (5.929) | | (0.514) | | (1.464) | (0.373) | |
| R squared | 0.99 | 0.95 | | 0.99 | | 0.70 | 0.97 | |
| F-Stat | 867.333 | 227.773 | | 957.354 | | 27.456 | 355.31 | |
| Observations | 26 | 26 | | 26 | | 26 | 26 | |
| Standard errors are in parentheses; \*Significant at 10%; \*\*Significant at 5%; \*\*\*Significant at 1%. | | | | | | | | |

Bilateral exports in manufacturing sectors between New Zealand and India are then used as the dependent variables and reported in Tables 5 and 6. The log of average population between New Zealand and India has the most significant effects on New Zealand and Indian exports in the two industries. In Table 5, a one percent increase in the average population has a positive effect of 4.025 percent increase in New Zealand manufacturing exports to India. Similarly in Table 6, a one percent increase in the average population tends to increase Indian manufacturing exports to New Zealand by around 3.85 percent. In contrast, New Zealand exchange rate has the least effects on New Zealand manufacturing exports to India. Most importantly, all the determinants have a stronger impact on Indian manufacturing exports to New Zealand than their influence on New Zealand manufacturing exports to India. This is reasonable since India has a relatively larger size of economy than New Zealand.

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| --- | --- | --- | --- | --- | --- |
| **Table 5: Determinants of New Zealand's Manufacturing Exports to India** | | | | | |
|  | Dependent Variable: Log(NZ's Manufacturing Exports to India) | | | | |
| Regressor | (1) | (2) | (3) | (4) | (5) |
| *Log(Av. GDP)* | 0.651\*\* |  |  |  |  |
| (0.271) |  |  |  |  |
| *Log(Av. POP)* |  | 4.025\* |  |  |  |
|  | (2.058) |  |  |  |
| *Log(Av. GDP/POP)* |  |  | 0.979 |  |  |
|  |  | (0.662) |  |  |
| *Log(Av. FDI)* |  |  |  | 0.281\* |  |
|  |  |  | (0.148) |  |
| *Log(Exports(-1))* |  |  |  |  | 0.440\* |
|  |  |  |  | (0.216) |
| *Log(Exchange Rate\_NZ)* | -0.752 | -1.160\* | -0.469 | -1.272\* | -1.283\*\* |
| (0.717) | (0.666) | (1.203) | (0.637) | (0.616) |
| *Log(Exchange Rate\_Ind)* | 0.782\*\* | 0.369 | 0.903\* | 0.723 | 0.815\* |
| (0.360) | (0.614) | (0.457) | (0.460) | (0.429) |
| *Intercept* | -7.536 | -22.740 | -8.842 | -1.047 | -0.466 |
| (2.773) | (11.071) | (5.269) | (0.830) | (0.667) |
| R squared | 0.81 | 0.79 | 0.78 | 0.79 | 0.78 |
| F-Stat | 31.017 | 28.331 | 26.07 | 28.016 | 24.367 |
| Observations | 26 | 26 | 26 | 26 | 26 |
| Standard errors are in parentheses; \*Significant at 10%; \*\*Significant at 5%; \*\*\*Significant at 1%. | | | | | |

Comparing Table 3 with Table 1, it can be seen that there is no big difference between the effects of the determinants on New Zealand’s manufacturing and agricultural exports to the world. The similar results can be found in India’s trade with the world when comparing Table 4 with Table 2. The possible reason is that the effects of determinants on country’s trade with the world in different sectors cannot be differentiated when country’s trade is measured at an aggregate level (for example, the rest of the world as a whole). Therefore, it can be expected that there could be some differences in sectors explained by the determinants when country trading with an individual partner other than the world as a whole.

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| --- | --- | --- | --- | --- | --- |
| **Table 6: Determinants of India's Manufacturing Exports to New Zealand** | | | | | |
|  | Dependent Variable: Log(India's Manufacturing Exports to NZ) | | | | |
| Regressor | (1) | (2) | (3) | (4) | (5) |
| *Log(Av. GDP)* | 0.575\*\*\* |  |  |  |  |
| (0.107) |  |  |  |  |
| *Log(Av. POP)* |  | 3.850\*\*\* |  |  |  |
|  | (0.861) |  |  |  |
| *Log(Av. GDP/POP)* |  |  | 1.080\*\*\* |  |  |
|  |  | (0.290) |  |  |
| *Log(Av. FDI)* |  |  |  | 0.249\*\*\* |  |
|  |  |  | (0.067) |  |
| *Log(Exports(-1))* |  |  |  |  | 0.680\*\*\* |
|  |  |  |  | (0.142) |
| *Log(Exchange Rate\_NZ)* | -0.983\*\*\* | -1.276\*\*\* | -0.375 | -1.443\*\*\* | -0.839\*\* |
| (0.282) | (0.279) | (0.527) | (0.287) | (0.337) |
| *Log(Exchange Rate\_Ind)* | 1.066\*\*\* | 0.619\*\* | 1.042\*\*\* | 1.013\*\*\* | 0.475 |
| (0.142) | (0.257) | (0.200) | (0.207) | (0.278) |
| *Intercept* | -6.517 | -21.530 | -9.359 | -0.784 | 0.113 |
| (1.090) | (4.631) | (2.309) | 90.374) | (0.458) |
| R squared | 0.97 | 0.96 | 0.96 | 0.96 | 0.96 |
| F-Stat | 239.011 | 194.941 | 165.355 | 165.291 | 175.89 |
| Observations | 26 | 26 | 26 | 26 | 25 |
| Standard errors are in parentheses; \*Significant at 10%; \*\*Significant at 5%; \*\*\*Significant at 1%. | | | | | |

Tables 7 and 8 measure the effects of determinants on the agricultural trade between New Zealand and India. In Table 7, nearly all the determinants affect New Zealand agricultural exports to India significantly, except the exchange rates of New Zealand and India. Specifically, the log of average population has the strongest influence on New Zealand agricultural exports to India. A one percent increase in the average population can increase New Zealand agricultural exports to India by 6.6 percent. In contrast, the log of average population has a more significant effect on Indian agricultural exports to New Zealand - around 7.25 percent [See Figure 8].

The log of average GDP per capita has the second strongest effects on both New Zealand and Indian exports. A one percent increase in average GDP per capita tends to increase their exports by 0.97-1.97 percent. Moreover, Indian exchange rate tends to be positively correlated with Indian exports in both of manufacturing and agriculture sectors, which is consistent with the hypothesis. However, the estimated coefficients of New Zealand exchange rates are remaining negative and inconsistent with the hypothesis. Overall, three determinants: average GDP, Population and GDP per capita have the strongest effects on both of NZ and Indian exports. Moreover, they have more obvious impacts on both NZ and Indian agricultural sectors than on their manufacturing sectors.

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| --- | --- | --- | --- | --- | --- |
| **Table 7: Determinants of New Zealand Agricultural Exports to India**  26 Observations, Except (5) | | | | | |
|  | Dependent Variable: log(NZ Agricultural Exports to India) | | | | |
| Regressor | (1) | (2) | (3) | (4) | (5) |
| *Log(Av. GDP)* | 1.038\*\*\* |  |  |  |  |
|  | (0.152) |  |  |  |  |
| *Log(Av. POP)* |  | 6.603\*\*\* |  |  |  |
|  |  | (1.374) |  |  |  |
| *Log(Av. GDP/POP)* |  |  | 1.742\*\*\* |  |  |
|  |  |  | (0.487) |  |  |
| *Log(Av. FDI)* |  |  |  | 0.337\*\* |  |
|  |  |  |  | (0.121) |  |
| *Log(Exports(-1))* |  |  |  |  | 0.827\*\*\* |
|  |  |  |  | (0.118) |
| *Log(Exchange Rate\_NZ)* | -0.264 | -0.872\* | 0.490 | -1.422\*\* | -0.667\* |
| (0.402) | (0.445) | (0.885) | (0.521) | (0.353) |
| *Log(Exchange Rate\_Ind)* | -0.151 | -0.861\*\* | -0.069 | 0.060 | 0.144 |
| (0.202) | (0.410) | (0.336) | (0.376) | (0.181) |
| *Intercept* | -8.205 | -33.438 | -11.708 | 2.103 | 0.624 |
| (1.555) | (7.388) | (3.874) | (0.679) | (0.560) |
| R squared | 0.92 | 0.87 | 0.84 | 0.81 | 0.92 |
| F-Stat | 80.665 | 50.468 | 37.277 | 30.767 | 77.91 |
| Standard errors are in parentheses; \*Significant at 10%; \*\*Significant at 5%; \*\*\*Significant at 1%. | | | | | |

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| --- | --- | --- | --- | --- | --- | --- |
| **Table 8: Determinants of Indian Agricultural Exports to New Zealand**  26 Observations | | | | | | |
|  | Dependent Variable: Log(Indian Agricultural Exports to NZ) | | | | | |
| Regressor | (1) | (2) | (3) | (4) | (5) | |
| *Log(Av. GDP)* | 1.020\*\*\* |  |  |  |  | |
| (0.136) |  |  |  |  | |
| *Log(Av. POP)* |  | 7.246\*\*\* |  |  |  | |
|  | (1.067) |  |  |  | |
| *Log(Av. GDP/POP)* |  |  | 2.103\*\*\* |  |  | |
|  |  | (0.375) |  |  | |
| *Log(Av. FDI)* |  |  |  | 0.193 |  | |
|  |  |  | (0.128) |  | |
| *Log(Exports(-1))* |  |  |  |  | 0.695\*\*\* | |
|  |  |  |  | (0.085) | |
| *Log(Exchange Rate\_NZ)* | -0.306 | -0.727\*\* | 1.087 | -1.852\*\*\* | -0.962\*\*\* | |
| (0.358) | (0.345) | (0.681) | (0.550) | (0.251) | |
| *Log(Exchange Rate\_Ind)* | 0.471\*\* | -0.439 | 0.314 | 1.057\*\* | 0.681\*\*\* | |
| (0.180) | (0.318) | (0.259) | (0.397) | (0.176) | |
| *Intercept* | -12.407 | -41.267 | -18.923 | -2.332 | -1.280 | |
| (1.387) | (5.736) | (2.982) | (0.717) | (0.482) | |
| R squared | 0.96 | 0.95 | 0.93 | 0.86 | 0.97 | |
| F-Stat | 157.402 | 135.467 | 104.76 | 43.541 | 210.643 | |
| Standard errors are in parentheses; \*Significant at 10%; \*\*Significant at 5%; \*\*\*Significant at 1%.  Tables 9 and 10 are a summary of the empirical results, specifically, a comparison of New Zealand export determinants with those of India.   |  |  | | --- | --- | | **Table 9: Comparison of New Zealand Export Determinants** | | | NZ Manufacturing Exports to the World | NZ Manufacturing Exports to India | | Larger coefficients for Average:  GDP; GDP/CAP; FDI, POP | Larger coefficients for:  POP; ERNZ | | NZ Agriculture Exports to the World | NZ Agriculture Exports to India | | Larger coefficients for Average;  GDP/CAP; X(-1); ERNZ | Larger coefficients for Average:  GDP; POP; GDP/CAP; FDI | |  | | | **Table 10: Comparison of Indian Export Determinants** | | | India Manufacturing Exports to the World | India Manufacturing Exports to NZ | | Larger coefficients for Average:  GDP; POP; GDP/CAP; FDI; XRInd; X-(1) | Larger coefficients for:  FDI; ERInd; ERNZ | | Larger coefficients for Average:  GDP; POP; GDP/CAP; FDI; XRInd; X-(1) | Larger coefficients for average:  GDP; POP; GDP/CAP; X(-1) |   **6. Some Observations**  New Zealand manufacturing and agriculture moved toward the same direction as GDP [Figure 1a]. Specifically, manufacturing growth is higher than the GDP and agricultural growth in 1989-1998. After that, both agriculture and manufacturing increased significantly in 1999-2004. During the last decade (2004-2014), agriculture growth was the most significant success as for New Zealand. Moreover, the growth rates in the GDP and the agriculture have been increasing slightly from 2011 to 2013. In comparison, the manufacturing suffered from a small growth reduction from 5 percent to 3 percent in the same period. During the one year from 2013 to 2014, both GDP and agriculture growth decreased with a higher reduction of 8 percent in GDP than that of 1 percent in agriculture. In terms of manufacturing, there is an increase of 8 percent in growth rate during the same year.  In India, the trends in manufacturing, agriculture and GDP moved toward the same direction, except the period of 1998-2001 and 2003-2006 [Figure 1b]. In 1998-2001, the trade in the agriculture decreased, whereas both GDP and manufacturing increased. In 2003-2006, both agriculture and manufacturing increased, while GDP growth decreased. In comparison with New Zealand, India’s GDP growth was much higher and has experienced more fluctuations. More recently, the growth in agriculture obtained the most significant increase from -15 percent to 37 percent (nearly 52 percent increase) from 2009 to 2010. After that, the growth rates in GDP and the manufacturing decreased sharply until 2012, while the agriculture continued decreasing recently. Both manufacturing and GDP improved slightly from 2012 to 2014, while the agriculture has been decreasing in the same period.  In terms of the share of New Zealand agriculture trade in GDP, the exports share had the larger proportion in GDP than the imports for New Zealand, which is around 14 percent [See Figure 2a]. The import share in GDP has been increasing gradually from 2 percent to 3 percent over the period. The exports and imports together contribute around 16 percent to New Zealand’s GDP. In comparison, both of the shares of India agriculture export and import in GDP increased gradually since 1988 [See Figure 2b]. The export share in GDP is higher than the import over the period, which is increased from around 2 percent to 5 percent. Recently, the share of agricultural imports and exports increased gradually from 2009 to 2014.  In the New Zealand manufacturing industry, the share of export and import in GDP were peaked at different levels in 1999 (22 percent for imports and 10 percent for exports) [See Figure 3a]. In other words, the manufacturing imports in GDP contributed more share than the exports. The exports and imports together contributed around 25 percent to New Zealand’s GDP, which is higher than the share of manufacturing in GDP. Recently, the share of manufacturing trade has been decreasing slightly from 2008 to 2014. In contrast, there is no big difference in the shares of manufacturing exports and imports in India’s GDP [See Figure 3b]. Both of them increased gradually from less than five percent to more than 10 percent over the period. The manufacturing exports and imports together contributed more than 20 percent in recent years. Moreover, the shares of the imports and the exports moved toward the opposite direction from 2012 to 2013, while toward the same direction from 2013 to 2014. | | | | | | |

**7. Summary and Conclusions**

This study examined and presented a model of New Zealand’s and India’s exports in agriculture and manufactured sectors to the world and each other. Using the data collected from The World Bank, UNCTAD Database and UN Comtrade Database from 1990 to 2014, we provided an overview of both countries’ trade and economy. We also estimated the effects of various determinants of trade between New Zealand and India and between New Zealand and the World empirically.

We found that both New Zealand and India have obtained a favorable growth in trade with the world. In comparison with New Zealand, India has experienced a more significant increase in both exports and imports. In terms of the bilateral trade between the two countries, both exports and imports increased significantly during 1990-2014. Moreover, both New Zealand and India have huge advantage in exporting agricultural products (especially in Food and Live Animals- SITC 0) with each other. In addition, New Zealand did not show big potential in the trade of manufacturing (except in Machinery-SITC 7) with India. In contrast, India’s trade in Manufactured Goods (SITC 6) was dominated in the manufacturing trade with both New Zealand and the World. However, despite the recent trade growth bilateral trade between New Zealand and India bellows potential.

Using the OLS regressions, we found that country’s GDP, Population and GDP per capita are the most important factors to explain the variations in country’s trade. When we compare New Zealand’s manufacturing and agricultural exports to the world and India’s manufacturing and agricultural exports to the world, we found that all the factors have greater effects on India’s exports than New Zealand’s exports. When we estimate the bilateral trade between the two countries, we found that GDP and Population have the most significant and positive explanatory power in both sectors, which is consistent with the trade theory. In addition, the results indicate that FDI inflows have more influence in both countrys' manufacturing sectors than in agricultural industries. However, these effects are negligible and sometimes insignificant in comparison with the impacts of GDP and Population on trade.

When we compare determinants of New Zealand manufacturing exports to the world with NZ manufacturing exports to India we find larger coefficients for POP and ERNZ associated with India and a larger coefficients for GDP, GDP/CAP and FDI associated with the world.

When we compare determinants of NZ agriculture exports to the world with NZ agriculture exports to India we find larger coefficients for GDP/CAP, X(-1) and ERNZ associated with the world, while larger coefficients for GDP, POP and GDP/CAP associated with India.

When we compare determinants of NZ manufacturing exports to the world with NZ agriculture exports to the world we find larger coefficients for POP, GDP/CAP and FDI associated with manufacturing and larger coefficients for GDP, X(-1) and ERNZ associated with agriculture.

When we compare determinants of NZ manufacturing exports to India with NZ agriculture exports to India we find larger coefficients for ERNZ associated with manufacturing and a larger coefficient for GDP, POP, GDP/CAP and FDI associated with agriculture.

When we compare determinants of India manufacturing exports to the world with India manufacturing exports to NZ we find larger coefficients for GDP, POP, GDP/CAP, FDI, XRInd and X-(1) associated with the world.

When we compare determinants of India agriculture exports to the world with India agriculture exports to NZ we find larger coefficients for GDP, POP, GDP/CAP, FDI, XRInd and X-(1) associated with the world.

When we compare determinants of India manufacturing exports to the world with India agriculture exports to the world we find larger coefficients for POP and FDI associated with manufacturing, while larger coefficients for GDP, GDP/CAP and X(-1) associated with agriculture.

When we compare determinants of India manufacturing exports to NZ with India agriculture exports to NZ we find larger coefficients for FDI, ERInd and ERNZ associated with manufacturing though a larger coefficient for GDP, POP, GDP/CAP and X(-1) is associated with agriculture.

In conclusion, this paper shows the responsiveness of manufactured exports and agricultural exports to GDP of the two economies, world income, the weighted average official exchange rate and FDI inflows.

Clearly both countries have to face the reality that there is a global community and there are alternative destinations to where exports can be attracted. A trade agreement between the two countries has potential given the complementarities of production and the anticipated economic growth in both countries. However, the negotiation challenges may be symbolic of wider communication challenges and differing objective functions which may constrain trade development. Finally, reader should recognize the analysis is based on recent history but we should expect export elasticities to change through time in response to changes in the economies of the nations and their trading partners.

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**Appendix A**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table A1: New Zealand's Trade and Growth 1988-2014**  Trade in US$ Millions | | | | | | |
|
| Year | Export | Growth % | Import | Growth % | Total Trade | Growth % |
| 1988 | 8,806.9 |  | 7,305.1 |  | 16,112.0 |  |
| 1989 | 8,867.3 | 0.7 | 8,775.0 | 20.1 | 17,642.3 | 9.5 |
| 1990 | 9,469.9 | 6.8 | 9,483.5 | 8.1 | 18,953.3 | 7.4 |
| 1991 | 9,745.5 | 2.9 | 8,496.8 | -10.4 | 18,242.3 | -3.8 |
| 1992 | 9,830.0 | 0.9 | 9,205.0 | 8.3 | 19,034.9 | 4.3 |
| 1993 | 10,558.2 | 7.4 | 9,654.7 | 4.9 | 20,212.9 | 6.2 |
| 1994 | 12,185.5 | 15.4 | 11,901.4 | 23.3 | 24,086.9 | 19.2 |
| 1995 | 13,745.4 | 12.8 | 13,957.6 | 17.3 | 27,703.1 | 15.0 |
| 1996 | 14,354.3 | 4.4 | 14,724.2 | 5.5 | 29,078.4 | 5.0 |
| 1997 | 14,085.9 | -1.9 | 14,518.5 | -1.4 | 28,604.4 | -1.6 |
| 1998 | 12,087.5 | -14.2 | 11,334.6 | -21.9 | 23,422.1 | -18.1 |
| 1999 | 12,473.9 | 3.2 | 14,318.3 | 26.3 | 26,792.3 | 14.4 |
| 2000 | 13,297.4 | 6.6 | 13,904.4 | -2.9 | 27,201.8 | 1.5 |
| 2001 | 13,729.7 | 3.3 | 13,306.9 | -4.3 | 27,036.6 | -0.6 |
| 2002 | 14,382.4 | 4.8 | 15,044.2 | 13.1 | 29,426.6 | 8.8 |
| 2003 | 16,526.9 | 14.9 | 18,557.4 | 23.4 | 35,084.3 | 19.2 |
| 2004 | 20,344.0 | 23.1 | 23,192.6 | 25.0 | 43,536.6 | 24.1 |
| 2005 | 21,728.5 | 6.8 | 26,232.0 | 13.1 | 47,960.6 | 10.2 |
| 2006 | 22,409.2 | 3.1 | 26,424.4 | 0.7 | 48,833.5 | 1.8 |
| 2007 | 26,930.9 | 20.2 | 30,890.4 | 16.9 | 57,821.3 | 18.4 |
| 2008 | 30,578.0 | 13.5 | 34,367.3 | 11.3 | 64,945.3 | 12.3 |
| 2009 | 24,932.6 | -18.5 | 25,565.9 | -25.6 | 50,498.5 | -22.2 |
| 2010 | 30,931.9 | 24.1 | 30,157.8 | 18.0 | 61,089.7 | 21.0 |
| 2011 | 37,633.2 | 21.7 | 36,111.3 | 19.7 | 73,744.4 | 20.7 |
| 2012 | 37,304.7 | -0.9 | 38,242.7 | 5.9 | 75,547.4 | 2.4 |
| 2013 | 39,443.6 | 5.7 | 39,619.2 | 3.6 | 79,062.8 | 4.7 |
| 2014 | 42,397.7 | 7.5 | 43,331.1 | 9.4 | 85,728.8 | 8.4 |
| *Source: World Development Indicators,* The World Bank(2015). *Authors' calculations.* | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- |
| **Table A2: New Zealand GDP and Trade Growth: 1988-2014**  Trade and GDP in US$ Millions | | | | | | |
|
| Year | GDP | Growth % | Manufacturing | Growth % | Agriculture | Growth % |
| *1988* | 45,112 |  | 8,555 |  | 6,863 |  |
| *1989* | 43,803 | -2.9 | 9,927 | 16.0 | 6,829 | -0.5 |
| *1990* | 45,098 | 3.0 | 10,615 | 6.9 | 6,993 | 2.4 |
| *1991* | 42,345 | -6.1 | 9,928 | -6.5 | 7,113 | 1.7 |
| *1992* | 41,234 | -2.6 | 10,688 | 7.7 | 7,260 | 2.1 |
| *1993* | 46,266 | 12.2 | 11,241 | 5.2 | 7,805 | 7.5 |
| *1994* | 54,668 | 18.2 | 14,112 | 25.5 | 8,776 | 12.4 |
| *1995* | 63,437 | 16.0 | 16,554 | 17.3 | 9,822 | 11.9 |
| *1996* | 69,564 | 9.7 | 17,024 | 2.8 | 10,420 | 6.1 |
| *1997* | 65,475 | -5.9 | 16,967 | -0.3 | 10,078 | -3.3 |
| *1998* | 55,641 | -15.0 | 13,537 | -20.2 | 8,643 | -14.2 |
| *1999* | 58,176 | 4.6 | 16,436 | 21.4 | 8,851 | 2.4 |
| *2000* | 52,012 | -10.6 | 15,947 | -3.0 | 9,172 | 3.6 |
| *2001* | 53,306 | 2.5 | 15,365 | -3.7 | 9,762 | 6.4 |
| *2002* | 66,021 | 23.9 | 17,075 | 11.1 | 10,294 | 5.4 |
| *2003* | 87,440 | 32.4 | 20,913 | 22.5 | 11,809 | 14.7 |
| *2004* | 102,986 | 17.8 | 25,712 | 22.9 | 14,593 | 23.6 |
| *2005* | 113,791 | 10.5 | 27,953 | 8.7 | 15,735 | 7.8 |
| *2006* | 110,205 | -3.2 | 27,523 | -1.5 | 16,168 | 2.8 |
| *2007* | 135,295 | 22.8 | 31,803 | 15.5 | 19,612 | 21.3 |
| *2008* | 130,459 | -3.6 | 32,874 | 3.4 | 22,489 | 14.7 |
| *2009* | 118,953 | -8.8 | 25,499 | -22.4 | 18,780 | -16.5 |
| *2010* | 143,467 | 20.6 | 29,498 | 15.7 | 23,681 | 26.1 |
| *2011* | 163,841 | 14.2 | 34,278 | 16.2 | 29,103 | 22.9 |
| *2012* | 171,461 | 4.7 | 35,577 | 3.8 | 29,291 | 0.6 |
| *2013* | 185,788 | 8.4 | 36,635 | 3.0 | 32,241 | 10.1 |
| *2014* | 191,732 | 3.2 | 40,421 | 10.3 | 35,297 | 9.5 |
| *Source: United Nations Comtrade Database* (2015). *Authors' calculations.* | | | | | | |

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| **Table A3: New Zealand and Indian Trade in Agriculture and Manufacturing 1988-2014**  US$Millions | | | | | | | | |
|
|  | NZ | | NZ | | India | | India | |
|  | Agriculture | | Manufacturing | | Agriculture | | Manufacturing | |
| Year | Export | Import | Export | Import | Export | Import | Export | Import |
| 1988 | 5,997.4 | 866.1 | 2,513.9 | 6,041.5 | 3,387.7 | 3,378.1 | 9,839.4 | 11,542.4 |
| 1989 | 5,863.1 | 965.9 | 2,665.1 | 7,262.4 | 4,210.0 | 2,782.9 | 12,097.2 | 13,578.4 |
| 1990 | 6,009.7 | 983.4 | 2,860.0 | 7,755.0 | 4,443.6 | 3,042.7 | 12,616.3 | 12,785.7 |
| 1991 | 6,135.0 | 978.3 | 3,057.7 | 6,870.2 | 4,238.7 | 2,039.6 | 12,959.3 | 10,070.7 |
| 1992 | 6,274.9 | 985.3 | 3,076.3 | 7,611.4 | 4,410.2 | 3,023.3 | 15,359.1 | 12,475.5 |
| 1993 | 6,711.3 | 1,093.9 | 3,305.1 | 7,936.2 | 4,944.3 | 2,245.5 | 16,435.1 | 12,798.2 |
| 1994 | 7,509.0 | 1,267.1 | 4,146.6 | 9,965.8 | 5,211.2 | 4,102.1 | 20,161.2 | 15,357.7 |
| 1995 | 8,364.2 | 1,458.0 | 4,803.9 | 11,749.6 | 7,299.1 | 4,268.3 | 23,363.9 | 20,555.3 |
| 1996 | 8,871.3 | 1,549.2 | 4,786.1 | 12,237.8 | 8,011.6 | 4,215.5 | 24,353.5 | 20,505.2 |
| 1997 | 8,566.6 | 1,511.5 | 4,924.9 | 12,042.0 | 7,695.4 | 4,693.3 | 25,994.8 | 22,078.7 |
| 1998 | 7,293.7 | 1,349.4 | 4,316.3 | 9,220.6 | 6,917.8 | 5,760.4 | 25,343.6 | 21,317.7 |
| 1999 | 7,384.7 | 1,466.6 | 4,492.8 | 11,943.5 | 6,505.4 | 6,205.7 | 29,274.9 | 23,932.0 |
| 2000 | 7,724.9 | 1,446.7 | 4,943.8 | 11,003.5 | 6,789.3 | 5,289.9 | 33,284.5 | 23,581.6 |
| 2001 | 8,274.2 | 1,488.1 | 4,877.1 | 10,487.6 | 7,248.7 | 5,965.8 | 33,194.3 | 23,296.9 |
| 2002 | 8,629.2 | 1,664.9 | 5,171.2 | 11,903.3 | 8,447.7 | 6,401.7 | 38,134.6 | 28,691.3 |
| 2003 | 9,882.1 | 1,926.8 | 6,059.5 | 14,853.7 | 8,780.3 | 7,800.9 | 46,053.2 | 36,664.1 |
| 2004 | 12,314.4 | 2,278.7 | 7,298.1 | 18,413.8 | 12,156.0 | 9,477.9 | 56,732.0 | 48,753.8 |
| 2005 | 13,204.2 | 2,530.7 | 7,503.7 | 20,449.1 | 16,186.4 | 11,770.3 | 72,538.5 | 69,734.7 |
| 2006 | 13,476.1 | 2,691.8 | 7,779.1 | 19,744.0 | 18,422.7 | 16,020.1 | 83,495.4 | 85,209.6 |
| 2007 | 16,350.5 | 3,261.7 | 8,739.2 | 23,063.5 | 23,692.8 | 19,928.2 | 96,893.3 | 105,808.6 |
| 2008 | 18,262.3 | 4,226.9 | 8,963.6 | 23,910.6 | 29,460.4 | 23,399.7 | 116,676.6 | 145,094.5 |
| 2009 | 15,622.4 | 3,157.1 | 6,964.2 | 18,534.7 | 23,548.4 | 21,961.6 | 121,237.8 | 132,985.8 |
| 2010 | 19,860.3 | 3,821.0 | 8,041.4 | 21,456.9 | 32,736.9 | 29,151.0 | 145,120.1 | 162,908.2 |
| 2011 | 24,432.5 | 4,670.2 | 9,369.9 | 24,908.1 | 41,730.1 | 38,027.1 | 188,889.2 | 201,656.3 |
| 2012 | 24,493.1 | 4,797.5 | 9,192.8 | 26,384.5 | 47,983.2 | 43,147.7 | 184,563.6 | 195,513.7 |
| 2013 | 27,248.3 | 4,992.8 | 9,002.7 | 27,632.4 | 52,062.9 | 41,371.5 | 207,499.1 | 191,278.1 |
| 2014 | 29,808.4 | 5,488.8 | 9,381.6 | 31,039.2 | 46,939.1 | 43,681.0 | 204,831.4 | 197,123.8 |
| *Source:* *UN Comtrade Database* (2015). | | | |  |  |  |  |  |

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| **Table A4.1: New Zealand's Trade**  **in Food and Live Animals**  **(SITC 0) 1988-2014**  US$ Millions | | | | |  | **A4.2: NZ's Trade**  **in Chemicals (SITC 5) 1988-2014**  US$ Millions | | | | |
|  |
|  |
| Year | Export | Growth % | Import | Growth % |  | Year | Export | Growth % | Import | Growth % |
| 1988 | 3712.5 |  | 435.9 |  |  | 1988 | 438.6 |  | 957.2 |  |
| 1989 | 3832.6 | 3.2 | 515.8 | 18.3 |  | 1989 | 451.6 | 3.0 | 1077.8 | 12.6 |
| 1990 | 4174.4 | 8.9 | 494.1 | -4.2 |  | 1990 | 492.9 | 9.2 | 1096.3 | 1.7 |
| 1991 | 4349.1 | 4.2 | 514.9 | 4.2 |  | 1991 | 587.6 | 19.2 | 1087.9 | -0.8 |
| 1992 | 4512.7 | 3.8 | 515.6 | 0.1 |  | 1992 | 566.3 | -3.6 | 1208.8 | 11.1 |
| 1993 | 4693.7 | 4.0 | 584.8 | 13.4 |  | 1993 | 621.7 | 9.8 | 1340.3 | 10.9 |
| 1994 | 5085.0 | 8.3 | 697.2 | 19.2 |  | 1994 | 935.5 | 50.5 | 1554.5 | 16.0 |
| 1995 | 5648.1 | 11.1 | 816.8 | 17.2 |  | 1995 | 1048.5 | 12.1 | 1823.4 | 17.3 |
| 1996 | 6265.9 | 10.9 | 889.6 | 8.9 |  | 1996 | 1049.8 | 0.1 | 1855.9 | 1.8 |
| 1997 | 6147.5 | -1.9 | 903.9 | 1.6 |  | 1997 | 1103.1 | 5.1 | 1823.1 | -1.8 |
| 1998 | 5400.3 | -12.2 | 830.8 | -8.1 |  | 1998 | 948.3 | -14.0 | 1269.9 | -30.3 |
| 1999 | 5478.9 | 1.5 | 885.4 | 6.6 |  | 1999 | 897.3 | -5.4 | 1769.2 | 39.3 |
| 2000 | 5589.6 | 2.0 | 851.3 | -3.9 |  | 2000 | 1174.5 | 30.9 | 1708.8 | -3.4 |
| 2001 | 6287.5 | 12.5 | 897.5 | 5.4 |  | 2001 | 1271.9 | 8.3 | 1728.9 | 1.2 |
| 2002 | 6444.8 | 2.5 | 1023.5 | 14.0 |  | 2002 | 1186.4 | -6.7 | 1821.9 | 5.4 |
| 2003 | 7474.6 | 16.0 | 1198.6 | 17.1 |  | 2003 | 1228.9 | 3.6 | 2162.2 | 18.7 |
| 2004 | 9427.9 | 26.1 | 1381.3 | 15.2 |  | 2004 | 1347.2 | 9.6 | 2614.4 | 20.9 |
| 2005 | 10267.0 | 8.9 | 1605.8 | 16.3 |  | 2005 | 1254.1 | -6.9 | 2975.5 | 13.8 |
| 2006 | 10353.7 | 0.8 | 1709.1 | 6.4 |  | 2006 | 1270.1 | 1.3 | 2867.4 | -3.6 |
| 2007 | 12646.4 | 22.1 | 2128.6 | 24.5 |  | 2007 | 1568.6 | 23.5 | 3357.3 | 17.1 |
| 2008 | 14374.1 | 13.7 | 2620.4 | 23.1 |  | 2008 | 1766.5 | 12.6 | 3918.8 | 16.7 |
| 2009 | 12200.1 | -15.1 | 2264.7 | -13.6 |  | 2009 | 1381.9 | -21.8 | 3020.1 | -22.9 |
| 2010 | 15302.7 | 25.4 | 2652.3 | 17.1 |  | 2010 | 1360.3 | -1.6 | 3536.1 | 17.1 |
| 2011 | 18857.0 | 23.2 | 3261.3 | 23.0 |  | 2011 | 1652.4 | 21.5 | 4168.8 | 17.9 |
| 2012 | 18705.4 | -0.8 | 3383.0 | 3.7 |  | 2012 | 1864.8 | 12.9 | 4251.8 | 2.0 |
| 2013 | 20732.3 | 10.8 | 3531.0 | 4.4 |  | 2013 | 1921.2 | 3.0 | 4292.2 | 1.0 |
| 2014 | 23232.5 | 12.1 | 4006.5 | 13.5 |  | 2014 | 2129.1 | 10.8 | 4505.8 | 5.0 |
| *Source: United Nations Comtrade Database* (2015).Authors' calculations. | | | | |  | *Source: United Nations Comtrade Database* (2015).Authors' calculations. | | | | |
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| **Table A4.3: NZ's Trade in Manufactured Goods (SITC 6) 1988-2014**  Trade in US$ Millions, Growth in Percent | | | | |  | **Table A4.4: NZ's Trade in Machinery**  **(SITC 7) 1988-2014**  Trade in US$ Millions, Growth in Percent | | | | |
|  |
|  |
| Year | Export | Growth % | Import | Growth % |  | Year | Export | Growth % | Import | Growth % |
| 1988 | 1283.1 |  | 1361.9 |  |  | 1988 | 515.3 |  | 2782.7 |  |
| 1989 | 1354.8 | 5.6 | 1501.4 | 10.2 |  | 1989 | 588.1 | 14.1 | 3626.0 | 30.3 |
| 1990 | 1384.0 | 2.2 | 1525.0 | 1.6 |  | 1990 | 668.4 | 13.7 | 3956.3 | 9.1 |
| 1991 | 1406.8 | 1.6 | 1438.9 | -5.6 |  | 1991 | 722.9 | 8.2 | 3188.2 | -19.4 |
| 1992 | 1364.3 | -3.0 | 1544.6 | 7.3 |  | 1992 | 734.8 | 1.6 | 3631.4 | 13.9 |
| 1993 | 1443.1 | 5.8 | 1561.5 | 1.1 |  | 1993 | 785.9 | 7.0 | 3721.2 | 2.5 |
| 1994 | 1669.3 | 15.7 | 1853.9 | 18.7 |  | 1994 | 1001.9 | 27.5 | 4973.3 | 33.6 |
| 1995 | 2011.9 | 20.5 | 2228.6 | 20.2 |  | 1995 | 1176.3 | 17.4 | 5886.6 | 18.4 |
| 1996 | 2022.8 | 0.5 | 2241.8 | 0.6 |  | 1996 | 1174.8 | -0.1 | 6164.9 | 4.7 |
| 1997 | 1971.3 | -2.5 | 2171.2 | -3.2 |  | 1997 | 1280.4 | 9.0 | 5963.0 | -3.3 |
| 1998 | 1742.8 | -11.6 | 1428.4 | -34.2 |  | 1998 | 1102.7 | -13.9 | 5001.6 | -16.1 |
| 1999 | 1741.8 | -0.1 | 2022.9 | 41.6 |  | 1999 | 1273.4 | 15.5 | 6189.3 | 23.7 |
| 2000 | 1825.0 | 4.8 | 1923.6 | -4.9 |  | 2000 | 1397.2 | 9.7 | 5478.7 | -11.5 |
| 2001 | 1754.6 | -3.9 | 1823.6 | -5.2 |  | 2001 | 1268.0 | -9.2 | 5118.5 | -6.6 |
| 2002 | 1908.1 | 8.7 | 2035.9 | 11.6 |  | 2002 | 1410.4 | 11.2 | 5994.6 | 17.1 |
| 2003 | 2170.7 | 13.8 | 2504.5 | 23.0 |  | 2003 | 1839.1 | 30.4 | 7602.1 | 26.8 |
| 2004 | 2696.7 | 24.2 | 3129.4 | 24.9 |  | 2004 | 2249.3 | 22.3 | 9478.9 | 24.7 |
| 2005 | 2734.4 | 1.4 | 3414.2 | 9.1 |  | 2005 | 2495.6 | 11.0 | 10668.5 | 12.5 |
| 2006 | 2801.5 | 2.5 | 3466.1 | 1.5 |  | 2006 | 2684.0 | 7.5 | 9896.0 | -7.2 |
| 2007 | 3167.4 | 13.1 | 4031.2 | 16.3 |  | 2007 | 2752.6 | 2.6 | 11602.6 | 17.2 |
| 2008 | 3124.5 | -1.4 | 4153.1 | 3.0 |  | 2008 | 2814.8 | 2.3 | 11604.2 | 0.0 |
| 2009 | 2244.6 | -28.2 | 3040.5 | -26.8 |  | 2009 | 2234.9 | -20.6 | 8739.0 | -24.7 |
| 2010 | 2925.2 | 30.3 | 3587.4 | 18.0 |  | 2010 | 2488.8 | 11.4 | 10052.4 | 15.0 |
| 2011 | 3364.9 | 15.0 | 4129.9 | 15.1 |  | 2011 | 2961.2 | 19.0 | 11858.7 | 18.0 |
| 2012 | 3085.5 | -8.3 | 4178.8 | 1.2 |  | 2012 | 2792.1 | -5.7 | 12887.8 | 8.7 |
| 2013 | 3048.7 | -1.2 | 4264.5 | 2.1 |  | 2013 | 2534.9 | -9.2 | 13879.6 | 7.7 |
| 2014 | 3090.3 | 1.4 | 4572.0 | 7.2 |  | 2014 | 2608.9 | 2.9 | 16437.1 | 18.4 |
| *Source: United Nations Comtrade Database* (2015).Authors' calculations. | | | | |  | *Source: United Nations Comtrade Database* (2015).Authors' calculations. | | | | |
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| **Table A5.1: India's Trade in Food**  **and Live Animals (SITC 0) 1988-2014**  Trade in US$ Millions, Growth in Percent | | | | |  | **Table A5.2: India's Trade in Chemicals**  **(SITC 5) 1988-2014**  Trade in US$ Millions, Growth in Percent | | | | |
|  |
|  |
| Year | Export | Growth % | Import | Growth % |  | Year | Export | Growth % | Import | Growth % |
| *1988* | 2173.1 |  | 1023.3 |  |  | *1988* | 831.1 |  | 2584.1 |  |
| *1989* | 2525.3 | 16.2 | 608.1 | -40.6 |  | *1989* | 1241.3 | 49.4 | 3117.1 | 20.6 |
| *1990* | 2500.2 | -1.0 | 569.1 | -6.4 |  | *1990* | 1330.4 | 7.2 | 3076.4 | -1.3 |
| *1991* | 2728.3 | 9.1 | 387.3 | -31.9 |  | *1991* | 1510.0 | 13.5 | 3101.8 | 0.8 |
| *1992* | 3046.3 | 11.7 | 806.7 | 108.3 |  | *1992* | 1391.8 | -7.8 | 3468.5 | 11.8 |
| *1993* | 3384.2 | 11.1 | 607.5 | -24.7 |  | *1993* | 1545.3 | 11.0 | 3001.6 | -13.5 |
| *1994* | 3752.9 | 10.9 | 1423.7 | 134.4 |  | *1994* | 2155.2 | 39.5 | 4213.0 | 40.4 |
| *1995* | 5351.2 | 42.6 | 768.9 | -46.0 |  | *1995* | 2580.5 | 19.7 | 5617.0 | 33.3 |
| *1996* | 5586.5 | 4.4 | 861.7 | 12.1 |  | *1996* | 3009.2 | 16.6 | 4960.7 | -11.7 |
| *1997* | 5439.8 | -2.6 | 1278.5 | 48.4 |  | *1997* | 3418.4 | 13.6 | 5461.8 | 10.1 |
| *1998* | 5198.1 | -4.4 | 1361.1 | 6.5 |  | *1998* | 3108.7 | -9.1 | 5245.3 | -4.0 |
| *1999* | 4617.6 | -11.2 | 1209.4 | -11.1 |  | *1999* | 3680.7 | 18.4 | 5745.5 | 9.5 |
| *2000* | 4764.6 | 3.2 | 790.7 | -34.6 |  | *2000* | 4342.5 | 18.0 | 4680.2 | -18.5 |
| *2001* | 5212.6 | 9.4 | 1089.5 | 37.8 |  | *2001* | 4746.7 | 9.3 | 4900.0 | 4.7 |
| *2002* | 5834.3 | 11.9 | 1363.0 | 25.1 |  | *2002* | 5562.1 | 17.2 | 5527.2 | 12.8 |
| *2003* | 5866.4 | 0.6 | 1346.7 | -1.2 |  | *2003* | 6763.3 | 21.6 | 6848.6 | 23.9 |
| *2004* | 6858.9 | 16.9 | 1631.2 | 21.1 |  | *2004* | 8840.2 | 30.7 | 9177.5 | 34.0 |
| *2005* | 8016.6 | 16.9 | 2097.8 | 28.6 |  | *2005* | 11433.2 | 29.3 | 13560.8 | 47.8 |
| *2006* | 9258.3 | 15.5 | 2445.1 | 16.6 |  | *2006* | 14113.8 | 23.4 | 16093.1 | 18.7 |
| *2007* | 11851.1 | 28.0 | 3986.3 | 63.0 |  | *2007* | 16363.4 | 15.9 | 20642.9 | 28.3 |
| *2008* | 15860.7 | 33.8 | 3688.0 | -7.5 |  | *2008* | 20454.1 | 25.0 | 34383.2 | 66.6 |
| *2009* | 11948.0 | -24.7 | 4878.1 | 32.3 |  | *2009* | 18522.0 | -9.4 | 27232.0 | -20.8 |
| *2010* | 15494.3 | 29.7 | 5427.1 | 11.3 |  | *2010* | 23576.8 | 27.3 | 34449.3 | 26.5 |
| *2011* | 23227.8 | 49.9 | 5477.1 | 0.9 |  | *2011* | 31257.1 | 32.6 | 42238.3 | 22.6 |
| *2012* | 26842.0 | 15.6 | 6066.5 | 10.8 |  | *2012* | 34502.4 | 10.4 | 44501.6 | 5.4 |
| *2013* | 33565.5 | 25.0 | 6153.1 | 1.4 |  | *2013* | 39430.1 | 14.3 | 44567.4 | 0.1 |
| *2014* | 31969.4 | -4.8 | 7576.6 | 23.1 |  | *2014* | 37117.7 | -5.9 | 48052.0 | 7.8 |
| *Source: United Nations Comtrade Database* (2015).Authors' calculations. | | | | |  | *Source: United Nations Comtrade Database* (2015).Authors' calculations. | | | | |
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**Appendix B**

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| **Table B1.1: New Zealand's Bilateral Trade with India**  **in Agricultural Sectors 1988-2013** US$ Millions | | |  | **Table B1.2: New Zealand's Bilateral Trade with India**  **in Manufacturing Sectors 1988-2013**  US$ Millions | | |
|  |
|  |
| Year | Export | Import |  | Year | Export | Import |
| 1988 | 35.78 | 3.94 |  | 1988 | 7.08 | 21.59 |
| 1989 | 37.66 | 6.18 |  | 1989 | 3.50 | 25.44 |
| 1990 | 53.03 | 5.08 |  | 1990 | 11.32 | 23.65 |
| 1991 | 45.03 | 4.65 |  | 1991 | 17.63 | 24.34 |
| 1992 | 37.60 | 5.36 |  | 1992 | 17.90 | 34.47 |
| 1993 | 50.88 | 5.96 |  | 1993 | 25.08 | 38.89 |
| 1994 | 45.81 | 5.94 |  | 1994 | 18.03 | 56.12 |
| 1995 | 49.88 | 6.40 |  | 1995 | 15.42 | 69.07 |
| 1996 | 51.59 | 8.42 |  | 1996 | 16.70 | 77.34 |
| 1997 | 59.04 | 9.56 |  | 1997 | 19.27 | 80.27 |
| 1998 | 64.37 | 8.51 |  | 1998 | 12.58 | 59.44 |
| 1999 | 68.33 | 9.09 |  | 1999 | 22.18 | 75.07 |
| 2000 | 57.09 | 7.50 |  | 2000 | 17.88 | 71.43 |
| 2001 | 43.14 | 8.69 |  | 2001 | 17.24 | 70.12 |
| 2002 | 57.34 | 10.36 |  | 2002 | 23.31 | 79.02 |
| 2003 | 54.62 | 11.42 |  | 2003 | 23.73 | 93.84 |
| 2004 | 70.46 | 13.36 |  | 2004 | 25.27 | 117.99 |
| 2005 | 79.16 | 17.99 |  | 2005 | 24.10 | 135.66 |
| 2006 | 104.05 | 19.35 |  | 2006 | 33.59 | 137.20 |
| 2007 | 138.72 | 27.01 |  | 2007 | 45.15 | 158.61 |
| 2008 | 133.29 | 34.35 |  | 2008 | 62.18 | 181.08 |
| 2009 | 166.05 | 28.58 |  | 2009 | 46.44 | 165.74 |
| 2010 | 304.94 | 33.96 |  | 2010 | 101.63 | 217.86 |
| 2011 | 346.80 | 43.04 |  | 2011 | 57.99 | 249.31 |
| 2012 | 260.99 | 42.56 |  | 2012 | 118.61 | 287.32 |
| 2013 | 266.21 | 48.94 |  | 2013 | 116.49 | 293.83 |
| 2014 | 332.26 | 57.05 |  | 2014 | 61.49 | 365.72 |
| *Source: United Nations Comtrade Database* (2015). | | |  | *Source: United Nations Comtrade Database* (2015). | | |
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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table B2.1: NZ Bilateral Trade with India**  **in Food and Live Animals (SITC 0) 1988-2014**  Trade in US$ Millions, Growth in Percent | | | | |  | **Table B2.2: NZ Bilateral Trade with India**  **in Chemicals (SITC 5) 1988-2014**  Trade in US$ Millions Growth in Percent | | | | |
|  |
|  |
| Year | Export | Growth % | Import | Growth % |  | Year | Export | Growth % | Import | Growth % |
| 1988 | 7.49 |  | 3.24 |  |  | 1988 | 0.54 |  | 1.00 |  |
| 1989 | 0.93 | -87.5 | 4.82 | 48.8 |  | 1989 | 0.43 | -19.7 | 0.88 | -12.3 |
| 1990 | 1.45 | 55.0 | 3.92 | -18.7 |  | 1990 | 0.28 | -35.7 | 0.86 | -2.0 |
| 1991 | 2.51 | 73.0 | 3.66 | -6.8 |  | 1991 | 0.06 | -79.7 | 0.74 | -14.4 |
| 1992 | 1.44 | -42.7 | 4.23 | 15.7 |  | 1992 | 0.13 | 131.1 | 1.25 | 70.4 |
| 1993 | 2.43 | 69.1 | 4.18 | -1.2 |  | 1993 | 0.08 | -36.6 | 2.35 | 88.0 |
| 1994 | 5.78 | 138.1 | 4.50 | 7.8 |  | 1994 | 0.35 | 317.1 | 2.71 | 15.3 |
| 1995 | 6.16 | 6.6 | 4.64 | 3.1 |  | 1995 | 0.75 | 114.9 | 3.00 | 10.4 |
| 1996 | 3.01 | -51.2 | 6.17 | 32.9 |  | 1996 | 0.86 | 14.9 | 3.71 | 23.6 |
| 1997 | 6.08 | 102.1 | 6.59 | 6.9 |  | 1997 | 3.92 | 357.5 | 4.98 | 34.5 |
| 1998 | 10.97 | 80.6 | 6.26 | -5.0 |  | 1998 | 1.00 | -74.4 | 5.45 | 9.3 |
| 1999 | 11.58 | 5.5 | 6.79 | 8.5 |  | 1999 | 1.91 | 90.5 | 8.21 | 50.8 |
| 2000 | 10.28 | -11.2 | 5.29 | -22.2 |  | 2000 | 1.32 | -30.9 | 9.96 | 21.3 |
| 2001 | 3.44 | -66.6 | 6.04 | 14.3 |  | 2001 | 0.84 | -36.5 | 10.87 | 9.1 |
| 2002 | 13.27 | 286.1 | 7.05 | 16.7 |  | 2002 | 1.01 | 20.0 | 13.16 | 21.1 |
| 2003 | 6.56 | -50.5 | 7.83 | 11.0 |  | 2003 | 0.74 | -26.1 | 12.76 | -3.0 |
| 2004 | 4.39 | -33.1 | 9.07 | 15.8 |  | 2004 | 0.95 | 27.7 | 14.60 | 14.4 |
| 2005 | 5.12 | 16.6 | 12.24 | 35.0 |  | 2005 | 1.37 | 44.0 | 18.11 | 24.0 |
| 2006 | 19.40 | 278.8 | 13.89 | 13.5 |  | 2006 | 2.69 | 96.7 | 17.72 | -2.1 |
| 2007 | 11.58 | -40.3 | 18.70 | 34.6 |  | 2007 | 2.12 | -21.4 | 24.89 | 40.4 |
| 2008 | 11.11 | -4.0 | 23.91 | 27.9 |  | 2008 | 3.42 | 61.6 | 35.78 | 43.8 |
| 2009 | 52.42 | 371.6 | 18.99 | -20.6 |  | 2009 | 3.04 | -11.2 | 43.46 | 21.5 |
| 2010 | 123.96 | 136.5 | 24.43 | 28.6 |  | 2010 | 4.54 | 49.5 | 62.69 | 44.2 |
| 2011 | 96.92 | -21.8 | 32.55 | 33.2 |  | 2011 | 5.23 | 15.2 | 74.27 | 18.5 |
| 2012 | 45.20 | -53.4 | 28.85 | -11.4 |  | 2012 | 5.26 | 0.6 | 90.04 | 21.2 |
| 2013 | 30.00 | -33.6 | 32.29 | 11.9 |  | 2013 | 6.24 | 18.6 | 83.77 | -7.0 |
| 2014 | 30.79 | 2.6 | 37.55 | 16.3 |  | 2014 | 14.88 | 138.5 | 93.68 | 11.8 |
| *Source: United Nations Comtrade Database* (2015).Authors' calculations. | | | | |  | *Source: United Nations Comtrade Database* (2015).Authors' calculations. | | | | |
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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table B2.3: NZ Bilateral Trade with India**  **in Manufactured Goods (SITC 6) 1988-2014**  Trade in US$ Millions, Growth in Percent | | | | |  | **Table B2.4: NZ Bilateral Trade with India**  **in Machinery (SITC 7) 1988-2014**  Trade in US$ Millions, Growth in Percent | | | | |
|  |
|  |
| Year | Export | Growth % | Import | Growth % |  | Year | Export | Growth % | Import | Growth % |
| 1988 | 6.0 |  | 13.8 |  |  | 1988 | 0.4 |  | 0.9 |  |
| 1989 | 1.8 | -69.2 | 15.1 | 8.8 |  | 1989 | 1.0 | 150.7 | 0.8 | -15.4 |
| 1990 | 9.9 | 442.2 | 14.2 | -5.9 |  | 1990 | 0.9 | -7.1 | 1.2 | 53.7 |
| 1991 | 16.5 | 65.7 | 15.6 | 9.9 |  | 1991 | 1.0 | 11.3 | 2.0 | 67.4 |
| 1992 | 10.6 | -35.8 | 23.3 | 49.4 |  | 1992 | 5.7 | 464.8 | 1.2 | -37.7 |
| 1993 | 10.4 | -1.4 | 24.0 | 3.1 |  | 1993 | 6.2 | 8.8 | 1.7 | 39.4 |
| 1994 | 7.3 | -30.0 | 30.3 | 26.2 |  | 1994 | 5.2 | -16.1 | 3.6 | 109.2 |
| 1995 | 8.7 | 18.6 | 34.0 | 12.3 |  | 1995 | 2.4 | -54.6 | 3.4 | -4.3 |
| 1996 | 11.2 | 29.0 | 37.5 | 10.3 |  | 1996 | 4.1 | 71.9 | 4.3 | 25.7 |
| 1997 | 10.9 | -2.3 | 40.7 | 8.5 |  | 1997 | 3.6 | -12.1 | 3.0 | -29.6 |
| 1998 | 9.3 | -15.0 | 28.3 | -30.4 |  | 1998 | 1.4 | -61.6 | 3.2 | 3.4 |
| 1999 | 12.3 | 32.4 | 36.4 | 28.4 |  | 1999 | 3.9 | 184.1 | 4.5 | 41.2 |
| 2000 | 11.1 | -9.6 | 34.2 | -5.9 |  | 2000 | 4.2 | 6.7 | 3.8 | -13.9 |
| 2001 | 11.9 | 7.3 | 35.2 | 2.8 |  | 2001 | 3.1 | -26.0 | 4.6 | 21.0 |
| 2002 | 13.8 | 15.7 | 39.3 | 11.9 |  | 2002 | 6.6 | 116.2 | 5.6 | 20.0 |
| 2003 | 12.0 | -13.1 | 49.7 | 26.5 |  | 2003 | 9.0 | 36.0 | 7.6 | 36.4 |
| 2004 | 13.1 | 9.4 | 64.2 | 29.1 |  | 2004 | 9.5 | 5.2 | 11.7 | 54.8 |
| 2005 | 10.6 | -19.3 | 69.8 | 8.8 |  | 2005 | 9.3 | -2.2 | 13.5 | 15.4 |
| 2006 | 11.4 | 7.7 | 65.4 | -6.3 |  | 2006 | 16.1 | 72.8 | 17.4 | 28.5 |
| 2007 | 15.7 | 37.2 | 72.6 | 10.9 |  | 2007 | 23.2 | 44.6 | 20.7 | 19.1 |
| 2008 | 22.9 | 46.3 | 72.7 | 0.2 |  | 2008 | 30.0 | 29.2 | 29.2 | 41.0 |
| 2009 | 20.3 | -11.4 | 55.5 | -23.6 |  | 2009 | 18.8 | -37.3 | 21.0 | -28.1 |
| 2010 | 25.2 | 24.4 | 70.1 | 26.3 |  | 2010 | 64.4 | 242.5 | 27.7 | 31.9 |
| 2011 | 18.8 | -25.4 | 80.7 | 15.1 |  | 2011 | 27.3 | -57.7 | 28.2 | 1.6 |
| 2012 | 16.2 | -14.2 | 89.9 | 11.4 |  | 2012 | 33.8 | 23.8 | 35.2 | 24.9 |
| 2013 | 21.1 | 30.9 | 92.8 | 3.2 |  | 2013 | 21.8 | -35.5 | 44.8 | 27.4 |
| 2014 | 22.6 | 7.0 | 116.3 | 25.3 |  | 2014 | 16.4 | -24.7 | 68.4 | 52.6 |
| *Source: United Nations Comtrade Database* (2015).  Authors' calculations. | | | | |  | *Source: United Nations Comtrade Database* (2015).Authors' calculations. | | | | |
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**Appendix C**

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| **Table C1: Determinants of New Zealand's Trade with the World**  US$ Millions, Except Exchange Rate | | | | | | | |
|
|  | Average | Average | Average | Average | NZ | NZ | NZ |
| Year | GDP | POP | GDP/POP | FDI | ER | X\_Ag(-1) | X\_Ma(-1) |
| 1988 | 9537897 | 2551 | 8736 | 82244 | 1.5 |  |  |
| 1989 | 10009481 | 2595 | 8564 | 98966 | 1.7 | 5997 | 2514 |
| 1990 | 11259629 | 2639 | 8902 | 103241 | 1.7 | 5863 | 2665 |
| 1991 | 11820705 | 2683 | 8258 | 76837 | 1.7 | 6010 | 2860 |
| 1992 | 12654346 | 2724 | 8158 | 83168 | 1.9 | 6135 | 3058 |
| 1993 | 12871293 | 2766 | 8800 | 110245 | 1.9 | 6275 | 3076 |
| 1994 | 13844613 | 2807 | 10013 | 126654 | 1.7 | 6711 | 3305 |
| 1995 | 15321413 | 2849 | 11320 | 170215 | 1.5 | 7509 | 4147 |
| 1996 | 15650577 | 2890 | 12023 | 193377 | 1.5 | 8364 | 4804 |
| 1997 | 15606517 | 2931 | 11316 | 243401 | 1.5 | 8871 | 4786 |
| 1998 | 15544726 | 2972 | 9905 | 352666 | 1.9 | 8567 | 4925 |
| 1999 | 16120444 | 3012 | 10258 | 545806 | 1.9 | 7294 | 4316 |
| 2000 | 16642006 | 3051 | 9466 | 706826 | 2.2 | 7385 | 4493 |
| 2001 | 16543367 | 3090 | 9543 | 419167 | 2.4 | 7725 | 4944 |
| 2002 | 17167325 | 3129 | 11100 | 313797 | 2.2 | 8274 | 4877 |
| 2003 | 19280063 | 3168 | 13895 | 301104 | 1.7 | 8629 | 5171 |
| 2004 | 21705927 | 3206 | 15977 | 367729 | 1.5 | 9882 | 6060 |
| 2005 | 23482286 | 3245 | 17375 | 497516 | 1.4 | 12314 | 7298 |
| 2006 | 25440026 | 3284 | 17035 | 738156 | 1.5 | 13204 | 7504 |
| 2007 | 28663926 | 3323 | 20304 | 1000022 | 1.4 | 13476 | 7779 |
| 2008 | 31429000 | 3362 | 19947 | 907430 | 1.4 | 16351 | 8739 |
| 2009 | 29769640 | 3402 | 18151 | 611069 | 1.6 | 18262 | 8964 |
| 2010 | 32608422 | 3442 | 21153 | 710911 | 1.4 | 15622 | 6964 |
| 2011 | 36069794 | 3482 | 23767 | 847970 | 1.3 | 19860 | 8041 |
| 2012 | 36757112 | 3522 | 24549 | 664035 | 1.2 | 24433 | 9370 |
| 2013 | 37796470 | 3562 | 26073 | 725489 | 1.2 | 24493 | 9193 |
| *Source: World Development Indicators, The World Bank; UNCTAD Stat* (2015). | | | | | | | |
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| **Table C2: Determinants of India's Trade with the World**  US$ Millions, Except Exchange Rate | | | | | | | |
|
|  | Average | Average | Average | Average | India | India | India |
| Year | GDP | POP | GDP/POP | FDI | ER | X\_Ag(-1) | X\_Ma(-1) |
| 1988 | 9666236 | 2966 | 2048 | 82212 | 13.9 |  |  |
| 1989 | 10138197 | 3019 | 2103 | 98875 | 16.2 | 3388 | 9839 |
| 1990 | 11400385 | 3072 | 2318 | 102517 | 17.5 | 4210 | 12097 |
| 1991 | 11936954 | 3124 | 2356 | 76029 | 22.7 | 4444 | 12616 |
| 1992 | 12780360 | 3174 | 2483 | 82750 | 25.9 | 4239 | 12959 |
| 1993 | 12990257 | 3225 | 2478 | 109405 | 30.5 | 4410 | 15359 |
| 1994 | 13983786 | 3275 | 2640 | 125832 | 31.4 | 4944 | 16435 |
| 1995 | 15472994 | 3325 | 2877 | 169865 | 32.4 | 5211 | 20161 |
| 1996 | 15815688 | 3375 | 2909 | 192680 | 35.4 | 7299 | 23364 |
| 1997 | 15785360 | 3424 | 2872 | 244251 | 36.3 | 8012 | 24353 |
| 1998 | 15731276 | 3473 | 2825 | 353069 | 41.3 | 7695 | 25995 |
| 1999 | 16324789 | 3522 | 2901 | 546419 | 43.1 | 6918 | 25344 |
| 2000 | 16854305 | 3570 | 2953 | 707947 | 44.9 | 6505 | 29275 |
| 2001 | 16763691 | 3618 | 2907 | 422199 | 47.2 | 6789 | 33285 |
| 2002 | 17396298 | 3665 | 2983 | 316028 | 48.6 | 7249 | 33194 |
| 2003 | 19545521 | 3712 | 3321 | 302217 | 46.6 | 8448 | 38135 |
| 2004 | 22015227 | 3760 | 3704 | 369505 | 45.3 | 8780 | 46053 |
| 2005 | 23842498 | 3807 | 3982 | 500485 | 44.1 | 12156 | 56732 |
| 2006 | 25859482 | 3854 | 4283 | 745695 | 45.3 | 16186 | 72539 |
| 2007 | 29215629 | 3900 | 4840 | 1011725 | 41.3 | 18423 | 83495 |
| 2008 | 31975818 | 3948 | 5188 | 929012 | 43.5 | 23693 | 96893 |
| 2009 | 30392850 | 3995 | 4943 | 629047 | 48.4 | 29460 | 116677 |
| 2010 | 33390918 | 4042 | 5438 | 724409 | 45.7 | 23548 | 121238 |
| 2011 | 36927923 | 4091 | 5940 | 863994 | 46.7 | 32737 | 145120 |
| 2012 | 37600753 | 4138 | 5961 | 675032 | 53.4 | 41730 | 188889 |
| 2013 | 38641975 | 4186 | 6045 | 739096 | 58.6 | 47983 | 184564 |
| *Source: World Development Indicators, The World Bank; UNCTAD Stat* (2015). | | | | | | | |
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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table C3: Determinants of New Zealand's Trade with India**  US$ Millions, Except Exchange Rate | | | | | | | | | | |
|
|  | Average | Average | Average | Average | NZ | India | NZ-India | NZ-Ind | India-NZ | India-NZ |
| Year | GDP | POP | GDP/POP | FDI | ER | ER | X\_Ag(-1) | X\_Ma(-1) | X\_Ag(-1) | X\_Ma(-1) |
| 1988 | 173452 | 419 | 7051 | 124 | 1.5 | 14 |  |  |  |  |
| 1989 | 172518 | 427 | 6815 | 343 | 1.7 | 16 | 36 | 7.1 | 3.9 | 14.9 |
| 1990 | 185853 | 436 | 6960 | 961 | 1.7 | 18 | 38 | 3.5 | 3.3 | 18.4 |
| 1991 | 158594 | 445 | 6213 | 883 | 1.7 | 23 | 53 | 11.3 | 2.3 | 18.9 |
| 1992 | 167248 | 454 | 6000 | 670 | 1.9 | 26 | 45 | 17.6 | 2.7 | 20.9 |
| 1993 | 165230 | 462 | 6630 | 1372 | 1.9 | 30 | 38 | 17.9 | 2.9 | 31.1 |
| 1994 | 193841 | 471 | 7728 | 1795 | 1.7 | 31 | 51 | 25.1 | 2.7 | 30.4 |
| 1995 | 215018 | 480 | 8826 | 2500 | 1.5 | 32 | 46 | 18.0 | 4.5 | 48.9 |
| 1996 | 234675 | 488 | 9525 | 3222 | 1.5 | 35 | 50 | 15.4 | 4.1 | 54.5 |
| 1997 | 244318 | 497 | 8871 | 2768 | 1.5 | 36 | 52 | 16.7 | 6.4 | 57.5 |
| 1998 | 242191 | 506 | 7505 | 2229 | 1.9 | 41 | 59 | 19.3 | 7.5 | 62.0 |
| 1999 | 262522 | 514 | 7812 | 1555 | 1.9 | 43 | 64 | 12.6 | 7.5 | 47.1 |
| 2000 | 264310 | 523 | 6970 | 2467 | 2.2 | 45 | 68 | 22.2 | 8.0 | 53.9 |
| 2001 | 273630 | 532 | 7102 | 2446 | 2.4 | 47 | 57 | 17.9 | 6.8 | 52.0 |
| 2002 | 294995 | 540 | 8604 | 3398 | 2.2 | 49 | 43 | 17.2 | 6.8 | 52.7 |
| 2003 | 352898 | 549 | 11139 | 3208 | 1.7 | 47 | 57 | 23.3 | 9.0 | 54.0 |
| 2004 | 412286 | 557 | 12923 | 4001 | 1.5 | 45 | 55 | 23.7 | 8.6 | 72.6 |
| 2005 | 474003 | 566 | 14133 | 4652 | 1.4 | 44 | 70 | 25.3 | 9.2 | 77.7 |
| 2006 | 529661 | 574 | 13583 | 12789 | 1.5 | 45 | 79 | 24.1 | 12.9 | 97.0 |
| 2007 | 686997 | 582 | 16533 | 13647 | 1.4 | 41 | 104 | 33.6 | 14.8 | 101.1 |
| 2008 | 677278 | 589 | 15801 | 25556 | 1.4 | 44 | 139 | 45.1 | 18.7 | 107.5 |
| 2009 | 742163 | 597 | 14355 | 17679 | 1.6 | 48 | 133 | 62.2 | 25.4 | 173.4 |
| 2010 | 925963 | 605 | 17132 | 13933 | 1.4 | 46 | 166 | 46.4 | 18.6 | 189.3 |
| 2011 | 1021971 | 613 | 19366 | 20166 | 1.3 | 47 | 305 | 101.6 | 22.8 | 163.9 |
| 2012 | 1015103 | 621 | 20091 | 13199 | 1.2 | 53 | 347 | 58.0 | 28.6 | 200.6 |
| 2013 | 1031293 | 628 | 21527 | 14593 | 1.2 | 59 | 261 | 118.6 | 34.2 | 252.6 |
| *Source: World Development Indicators, The World Bank; UNCTAD Stat* (2015). | | | | | | | | | | |

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| **Table C4: New Zealand GDP and Trade Growth 1988-2014**  Trade and GDP, US$ Millions | | | | | | |
|
| Year | GDP | Growth % | Manu | Growth % | Agri | Growth % |
| 1988 | 45112 |  | 8555 |  | 6863 |  |
| 1989 | 43803 | -2.9 | 9927 | 16.0 | 6829 | -0.5 |
| 1990 | 45098 | 3.0 | 10615 | 6.9 | 6993 | 2.4 |
| 1991 | 42345 | -6.1 | 9928 | -6.5 | 7113 | 1.7 |
| 1992 | 41234 | -2.6 | 10688 | 7.7 | 7260 | 2.1 |
| 1993 | 46266 | 12.2 | 11241 | 5.2 | 7805 | 7.5 |
| 1994 | 54668 | 18.2 | 14112 | 25.5 | 8776 | 12.4 |
| 1995 | 63437 | 16.0 | 16554 | 17.3 | 9822 | 11.9 |
| 1996 | 69564 | 9.7 | 17024 | 2.8 | 10420 | 6.1 |
| 1997 | 65475 | -5.9 | 16967 | -0.3 | 10078 | -3.3 |
| 1998 | 55641 | -15.0 | 13537 | -20.2 | 8643 | -14.2 |
| 1999 | 58176 | 4.6 | 16436 | 21.4 | 8851 | 2.4 |
| 2000 | 52012 | -10.6 | 15947 | -3.0 | 9172 | 3.6 |
| 2001 | 53306 | 2.5 | 15365 | -3.7 | 9762 | 6.4 |
| 2002 | 66021 | 23.9 | 17075 | 11.1 | 10294 | 5.4 |
| 2003 | 87440 | 32.4 | 20913 | 22.5 | 11809 | 14.7 |
| 2004 | 102986 | 17.8 | 25712 | 22.9 | 14593 | 23.6 |
| 2005 | 113791 | 10.5 | 27953 | 8.7 | 15735 | 7.8 |
| 2006 | 110205 | -3.2 | 27523 | -1.5 | 16168 | 2.8 |
| 2007 | 135295 | 22.8 | 31803 | 15.5 | 19612 | 21.3 |
| 2008 | 130459 | -3.6 | 32874 | 3.4 | 22489 | 14.7 |
| 2009 | 118953 | -8.8 | 25499 | -22.4 | 18780 | -16.5 |
| 2010 | 143467 | 20.6 | 29498 | 15.7 | 23681 | 26.1 |
| 2011 | 163841 | 14.2 | 34278 | 16.2 | 29103 | 22.9 |
| 2012 | 171461 | 4.7 | 35577 | 3.8 | 29291 | 0.6 |
| 2013 | 185788 | 8.4 | 36635 | 3.0 | 32241 | 10.1 |
| 2014 | 191732 | 3.2 | 40421 | 10.3 | 35297 | 9.5 |
| *Source: United Nations Comtrade Database* (2015).Authors' calculations. | | | | | | |

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| **Table C5: New Zealand Share of Agricultural Trade in GDP 1988-2014**  Trade and GDP in US$ Millions, Share in Percent | | | | | | | |
|
|  |  | Agriculture | | | | | |
| Year | GDP | Export | Share | Import | Share | Trade | Share |
| 1988 | 45112 | 5997 | 13.3 | 866 | 1.9 | 6863 | 15.2 |
| 1989 | 43803 | 5863 | 13.4 | 966 | 2.2 | 6829 | 15.6 |
| 1990 | 45098 | 6010 | 13.3 | 983 | 2.2 | 6993 | 15.5 |
| 1991 | 42345 | 6135 | 14.5 | 978 | 2.3 | 7113 | 16.8 |
| 1992 | 41234 | 6275 | 15.2 | 985 | 2.4 | 7260 | 17.6 |
| 1993 | 46266 | 6711 | 14.5 | 1094 | 2.4 | 7805 | 16.9 |
| 1994 | 54668 | 7509 | 13.7 | 1267 | 2.3 | 8776 | 16.1 |
| 1995 | 63437 | 8364 | 13.2 | 1458 | 2.3 | 9822 | 15.5 |
| 1996 | 69564 | 8871 | 12.8 | 1549 | 2.2 | 10420 | 15.0 |
| 1997 | 65475 | 8567 | 13.1 | 1512 | 2.3 | 10078 | 15.4 |
| 1998 | 55641 | 7294 | 13.1 | 1349 | 2.4 | 8643 | 15.5 |
| 1999 | 58176 | 7385 | 12.7 | 1467 | 2.5 | 8851 | 15.2 |
| 2000 | 52012 | 7725 | 14.9 | 1447 | 2.8 | 9172 | 17.6 |
| 2001 | 53306 | 8274 | 15.5 | 1488 | 2.8 | 9762 | 18.3 |
| 2002 | 66021 | 8629 | 13.1 | 1665 | 2.5 | 10294 | 15.6 |
| 2003 | 87440 | 9882 | 11.3 | 1927 | 2.2 | 11809 | 13.5 |
| 2004 | 102986 | 12314 | 12.0 | 2279 | 2.2 | 14593 | 14.2 |
| 2005 | 113791 | 13204 | 11.6 | 2531 | 2.2 | 15735 | 13.8 |
| 2006 | 110205 | 13476 | 12.2 | 2692 | 2.4 | 16168 | 14.7 |
| 2007 | 135295 | 16351 | 12.1 | 3262 | 2.4 | 19612 | 14.5 |
| 2008 | 130459 | 18262 | 14.0 | 4227 | 3.2 | 22489 | 17.2 |
| 2009 | 118953 | 15622 | 13.1 | 3157 | 2.7 | 18780 | 15.8 |
| 2010 | 143467 | 19860 | 13.8 | 3821 | 2.7 | 23681 | 16.5 |
| 2011 | 163841 | 24433 | 14.9 | 4670 | 2.9 | 29103 | 17.8 |
| 2012 | 171461 | 24493 | 14.3 | 4797 | 2.8 | 29291 | 17.1 |
| 2013 | 185788 | 27248 | 14.7 | 4993 | 2.7 | 32241 | 17.4 |
| 2014 | 191732 | 29808 | 15.5 | 5489 | 2.9 | 35297 | 18.4 |
| *Source: United Nations Comtrade Database* (2015).Authors' calculations. | | | | | | | |

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| **Table C6: New Zealand Share of Manufacturing Trade in GDP 1988-2014**  Trade and GDP in US$ Millions, Share in Percent | | | | | | | |
|
|  |  | Manufacturing | | | | | |
| Year | GDP | Export | Share | Import | Share | Trade | Share |
| 1988 | 45112 | 2514 | 5.6 | 6042 | 13.4 | 8555 | 19.0 |
| 1989 | 43803 | 2665 | 6.1 | 7262 | 16.6 | 9927 | 22.7 |
| 1990 | 45098 | 2860 | 6.3 | 7755 | 17.2 | 10615 | 23.5 |
| 1991 | 42345 | 3058 | 7.2 | 6870 | 16.2 | 9928 | 23.4 |
| 1992 | 41234 | 3076 | 7.5 | 7611 | 18.5 | 10688 | 25.9 |
| 1993 | 46266 | 3305 | 7.1 | 7936 | 17.2 | 11241 | 24.3 |
| 1994 | 54668 | 4147 | 7.6 | 9966 | 18.2 | 14112 | 25.8 |
| 1995 | 63437 | 4804 | 7.6 | 11750 | 18.5 | 16554 | 26.1 |
| 1996 | 69564 | 4786 | 6.9 | 12238 | 17.6 | 17024 | 24.5 |
| 1997 | 65475 | 4925 | 7.5 | 12042 | 18.4 | 16967 | 25.9 |
| 1998 | 55641 | 4316 | 7.8 | 9221 | 16.6 | 13537 | 24.3 |
| 1999 | 58176 | 4493 | 7.7 | 11943 | 20.5 | 16436 | 28.3 |
| 2000 | 52012 | 4944 | 9.5 | 11004 | 21.2 | 15947 | 30.7 |
| 2001 | 53306 | 4877 | 9.1 | 10488 | 19.7 | 15365 | 28.8 |
| 2002 | 66021 | 5171 | 7.8 | 11903 | 18.0 | 17075 | 25.9 |
| 2003 | 87440 | 6060 | 6.9 | 14854 | 17.0 | 20913 | 23.9 |
| 2004 | 102986 | 7298 | 7.1 | 18414 | 17.9 | 25712 | 25.0 |
| 2005 | 113791 | 7504 | 6.6 | 20449 | 18.0 | 27953 | 24.6 |
| 2006 | 110205 | 7779 | 7.1 | 19744 | 17.9 | 27523 | 25.0 |
| 2007 | 135295 | 8739 | 6.5 | 23063 | 17.0 | 31803 | 23.5 |
| 2008 | 130459 | 8964 | 6.9 | 23911 | 18.3 | 32874 | 25.2 |
| 2009 | 118953 | 6964 | 5.9 | 18535 | 15.6 | 25499 | 21.4 |
| 2010 | 143467 | 8041 | 5.6 | 21457 | 15.0 | 29498 | 20.6 |
| 2011 | 163841 | 9370 | 5.7 | 24908 | 15.2 | 34278 | 20.9 |
| 2012 | 171461 | 9193 | 5.4 | 26384 | 15.4 | 35577 | 20.7 |
| 2013 | 185788 | 9003 | 4.8 | 27632 | 14.9 | 36635 | 19.7 |
| 2014 | 191732 | 9382 | 4.9 | 31039 | 16.2 | 40421 | 21.1 |

*Source: United Nations Comtrade Database* (2015).Authors' calculations.

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| --- | --- | --- | --- | --- | --- | --- |
| **Table C7: India GDP and Trade Growth: 1988-2014**  Trade and GDP in US$ Millions | | | | | | |
|
| Year | GDP | Growth % | Manu | Growth % | Agri | Growth % |
| 1988 | 301791 |  | 21382 |  | 6766 |  |
| 1989 | 301234 | -0.2 | 25676 | 20.1 | 6993 | 3.4 |
| 1990 | 326608 | 8.4 | 25402 | -1.1 | 7486 | 7.1 |
| 1991 | 274842 | -15.8 | 23030 | -9.3 | 6278 | -16.1 |
| 1992 | 293262 | 6.7 | 27835 | 20.9 | 7434 | 18.4 |
| 1993 | 284194 | -3.1 | 29233 | 5.0 | 7190 | -3.3 |
| 1994 | 333014 | 17.2 | 35519 | 21.5 | 9313 | 29.5 |
| 1995 | 366600 | 10.1 | 43919 | 23.7 | 11567 | 24.2 |
| 1996 | 399787 | 9.1 | 44859 | 2.1 | 12227 | 5.7 |
| 1997 | 423160 | 5.8 | 48074 | 7.2 | 12389 | 1.3 |
| 1998 | 428741 | 1.3 | 46661 | -2.9 | 12678 | 2.3 |
| 1999 | 466867 | 8.9 | 53207 | 14.0 | 12711 | 0.3 |
| 2000 | 476609 | 2.1 | 56866 | 6.9 | 12079 | -5.0 |
| 2001 | 493954 | 3.6 | 56491 | -0.7 | 13214 | 9.4 |
| 2002 | 523969 | 6.1 | 66826 | 18.3 | 14849 | 12.4 |
| 2003 | 618356 | 18.0 | 82717 | 23.8 | 16581 | 11.7 |
| 2004 | 721586 | 16.7 | 105486 | 27.5 | 21634 | 30.5 |
| 2005 | 834215 | 15.6 | 142273 | 34.9 | 27957 | 29.2 |
| 2006 | 949117 | 13.8 | 168705 | 18.6 | 34443 | 23.2 |
| 2007 | 1238700 | 30.5 | 202702 | 20.2 | 43621 | 26.6 |
| 2008 | 1224097 | -1.2 | 261771 | 29.1 | 52860 | 21.2 |
| 2009 | 1365372 | 11.5 | 254224 | -2.9 | 45510 | -13.9 |
| 2010 | 1708459 | 25.1 | 308028 | 21.2 | 61888 | 36.0 |
| 2011 | 1880100 | 10.0 | 390546 | 26.8 | 79757 | 28.9 |
| 2012 | 1858745 | -1.1 | 380077 | -2.7 | 91131 | 14.3 |
| 2013 | 1876797 | 1.0 | 398777 | 4.9 | 93434 | 2.5 |
| 2014 | 2066902 | 10.1 | 401955 | 0.8 | 90620 | -3.0 |
| *Source: United Nations Comtrade Database* (2015).Authors' calculations. | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Appendix D**  **Table D1: India Share of Agricultural Trade in GDP 1988-2014**  Trade and GDP in US$ Millions, Share in Percent | | | | | | | |
|
|  |  | Agriculture | | | | | |
| Year | GDP | Export | Share | Import | Share | Trade | Share |
| 1988 | 301791 | 3388 | 1.1 | 3378 | 1.1 | 6766 | 2.2 |
| 1989 | 301234 | 4210 | 1.4 | 2783 | 0.9 | 6993 | 2.3 |
| 1990 | 326608 | 4444 | 1.4 | 3043 | 0.9 | 7486 | 2.3 |
| 1991 | 274842 | 4239 | 1.5 | 2040 | 0.7 | 6278 | 2.3 |
| 1992 | 293262 | 4410 | 1.5 | 3023 | 1.0 | 7434 | 2.5 |
| 1993 | 284194 | 4944 | 1.7 | 2246 | 0.8 | 7190 | 2.5 |
| 1994 | 333014 | 5211 | 1.6 | 4102 | 1.2 | 9313 | 2.8 |
| 1995 | 366600 | 7299 | 2.0 | 4268 | 1.2 | 11567 | 3.2 |
| 1996 | 399787 | 8012 | 2.0 | 4215 | 1.1 | 12227 | 3.1 |
| 1997 | 423160 | 7695 | 1.8 | 4693 | 1.1 | 12389 | 2.9 |
| 1998 | 428741 | 6918 | 1.6 | 5760 | 1.3 | 12678 | 3.0 |
| 1999 | 466867 | 6505 | 1.4 | 6206 | 1.3 | 12711 | 2.7 |
| 2000 | 476609 | 6789 | 1.4 | 5290 | 1.1 | 12079 | 2.5 |
| 2001 | 493954 | 7249 | 1.5 | 5966 | 1.2 | 13214 | 2.7 |
| 2002 | 523969 | 8448 | 1.6 | 6402 | 1.2 | 14849 | 2.8 |
| 2003 | 618356 | 8780 | 1.4 | 7801 | 1.3 | 16581 | 2.7 |
| 2004 | 721586 | 12156 | 1.7 | 9478 | 1.3 | 21634 | 3.0 |
| 2005 | 834215 | 16186 | 1.9 | 11770 | 1.4 | 27957 | 3.4 |
| 2006 | 949117 | 18423 | 1.9 | 16020 | 1.7 | 34443 | 3.6 |
| 2007 | 1238700 | 23693 | 1.9 | 19928 | 1.6 | 43621 | 3.5 |
| 2008 | 1224097 | 29460 | 2.4 | 23400 | 1.9 | 52860 | 4.3 |
| 2009 | 1365372 | 23548 | 1.7 | 21962 | 1.6 | 45510 | 3.3 |
| 2010 | 1708459 | 32737 | 1.9 | 29151 | 1.7 | 61888 | 3.6 |
| 2011 | 1880100 | 41730 | 2.2 | 38027 | 2.0 | 79757 | 4.2 |
| 2012 | 1858745 | 47983 | 2.6 | 43148 | 2.3 | 91131 | 4.9 |
| 2013 | 1876797 | 52063 | 2.8 | 41372 | 2.2 | 93434 | 5.0 |
| 2014 | 2066902 | 46939 | 2.3 | 43681 | 2.1 | 90620 | 4.4 |
| *Source: United Nations Comtrade Database* (2015).Authors' calculations. | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Table D2: India Share of Manufacturing Trade in GDP 1988-2014**  **Trade and GDP**  US$ Millions, Share in Percent | | | | | | | |
|
|  |  | Manufacturing | | | | | |
| Year | GDP | Export | Share | Import | Share | Trade | Share |
| 1988 | 301791 | 9839 | 3.3 | 11542 | 3.8 | 21382 | 7.1 |
| 1989 | 301234 | 12097 | 4.0 | 13578 | 4.5 | 25676 | 8.5 |
| 1990 | 326608 | 12616 | 3.9 | 12786 | 3.9 | 25402 | 7.8 |
| 1991 | 274842 | 12959 | 4.7 | 10071 | 3.7 | 23030 | 8.4 |
| 1992 | 293262 | 15359 | 5.2 | 12475 | 4.3 | 27835 | 9.5 |
| 1993 | 284194 | 16435 | 5.8 | 12798 | 4.5 | 29233 | 10.3 |
| 1994 | 333014 | 20161 | 6.1 | 15358 | 4.6 | 35519 | 10.7 |
| 1995 | 366600 | 23364 | 6.4 | 20555 | 5.6 | 43919 | 12.0 |
| 1996 | 399787 | 24353 | 6.1 | 20505 | 5.1 | 44859 | 11.2 |
| 1997 | 423160 | 25995 | 6.1 | 22079 | 5.2 | 48074 | 11.4 |
| 1998 | 428741 | 25344 | 5.9 | 21318 | 5.0 | 46661 | 10.9 |
| 1999 | 466867 | 29275 | 6.3 | 23932 | 5.1 | 53207 | 11.4 |
| 2000 | 476609 | 33285 | 7.0 | 23582 | 4.9 | 56866 | 11.9 |
| 2001 | 493954 | 33194 | 6.7 | 23297 | 4.7 | 56491 | 11.4 |
| 2002 | 523969 | 38135 | 7.3 | 28691 | 5.5 | 66826 | 12.8 |
| 2003 | 618356 | 46053 | 7.4 | 36664 | 5.9 | 82717 | 13.4 |
| 2004 | 721586 | 56732 | 7.9 | 48754 | 6.8 | 105486 | 14.6 |
| 2005 | 834215 | 72539 | 8.7 | 69735 | 8.4 | 142273 | 17.1 |
| 2006 | 949117 | 83495 | 8.8 | 85210 | 9.0 | 168705 | 17.8 |
| 2007 | 1238700 | 96893 | 7.8 | 105809 | 8.5 | 202702 | 16.4 |
| 2008 | 1224097 | 116677 | 9.5 | 145094 | 11.9 | 261771 | 21.4 |
| 2009 | 1365372 | 121238 | 8.9 | 132986 | 9.7 | 254224 | 18.6 |
| 2010 | 1708459 | 145120 | 8.5 | 162908 | 9.5 | 308028 | 18.0 |
| 2011 | 1880100 | 188889 | 10.0 | 201656 | 10.7 | 390546 | 20.8 |
| 2012 | 1858745 | 184564 | 9.9 | 195514 | 10.5 | 380077 | 20.4 |
| 2013 | 1876797 | 207499 | 11.1 | 191278 | 10.2 | 398777 | 21.2 |
| 2014 | 2066902 | 204831 | 9.9 | 197124 | 9.5 | 401955 | 19.4 |
| *Source: United Nations Comtrade Database* (2015).Authors' calculations. | | | | | | | |